49th Year
No. 2

February, 1909

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AMERICAN BEE JOURNAL

APIARY OF J. F. DIEMER & SON, LIBERTY, MO.—(See page 39.)

APIARY OF G. A. BARBISH, LA CRESCENT, MINN.—(See page 39.)

American Bee Journal

THE AMERICAN BEE JOURNAL

PUBLISHED MONTHLY BY

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American Bee Journal

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GEORGE W. YORK, Editor | **CHICAGO, ILL., FEBRUARY, 1909** | **Vol. XLIX—No. 2**

Uncle Sam's Sweet Tooth

It takes a million dollars a day to satisfy it with sugar, to say nothing about honey. That's according to the latest Government report, which is for the year 1907. A honey-leaflet that has had a considerable circulation says that the average annual consumption of sugar for every man, woman, and child in the United States is about 60 pounds. That was true when the leaflet was written; but the consumption has greatly increased, and for 1907 it was 82.6 pounds! At that rate the average individual eats half his own weight of sugar in a year. Of the more than 7,000,000,000 pounds consumed, 21.3 percent was of home production, 17.7 percent from our insular possessions, and 61 percent from foreign countries. Of the home product, 64 percent was from beets and 36 percent from cane. From all this the bee-keeper may at least glean the crumb of comfort that Uncle Sam's taste for sweet is not dying out.

Does Age Deteriorate Honey?

Mr. Frank Rauchfuss showed some comb honey at the bee-convention, which was three years old. It had candied and liquefied several times, and the comb was but slightly cracked. The honey was liquid, but it had lost all of its original honey-flavor, and was thick like taffy. Mr. Rauchfuss said that it could no longer be considered as honey. All the water, apparently, had left the honey, and nothing but a sticky syrup was left.—WESLEY FOSTER, in Gleanings.

Editor Root adds this footnote:

Honey would evaporate more in a Colorado climate than in the East, generally. The presumption is that a 12-year-old Colorado honey would be very different from an Eastern 12-year-old honey.

Evidently the question of the keeping of comb honey is one upon which we need more light. It is a matter of importance to know whether, at a time when prices are very low one can keep comb honey over for a higher price. If so, under what conditions? Does kind of honey, climate, or something else make a difference? Comb honey 12 years old has been reported. Can any one tell us the quality of the honey itself? It is generally agreed that honey is improved by leaving it a long time with the bees. If leaving it with the bees a few weeks improves it, would it not be better, or at least as good, if it were left with them two or three times as long, or five times as long, provided conditions remain the same? If so, can we not imitate the conditions under which honey is kept by the bees sufficiently well to keep it over at least till the next season?

These questions can not be answered so well by reasoning as by actual experiences. There are very likely a number who have kept comb honey over, say to June of the next year. Will they kindly report the result, especially as to the quality of the honey, whether favorable or unfavorable?

Should Bees be Allowed to Build Comb?

Mr. Aikin's word carries weight, and this is an important matter. It is, however, against the general belief, and the word of even so good authority as Mr. Aikin will not pass current without scrutiny in such a case. If it is true, then is it not a mistake, when running for extracted honey, to furnish entirely drawn combs, giving the bees no opportunity to build?

Mr. Aikin explains that when bees are not allowed to build comb the great quantities of wax that they secrete are used in other ways. He say, in Gleanings:

"When scraping sections I save the scrapings, which appear to be almost entirely propolis; but when melted they yield considerable wax. Then I have many times seen nice white wax used to fill cracks about comb-honey supers; and when there are full sets of combs already built to hold every drop of honey to be stored, I have found workers loaded with wax-scales, cracks stopped with wax, burr-combs put here and there without stint, and, when not needed, bits of wax built against the quilts over the top-bars, sometimes amounting to a quarter or even half a pound—all this apparently is done just to get rid of the surplus wax by using it where propolis would ordinarily be used.

But that "quarter or even half a pound" seems a small quantity compared with the several pounds that must be produced by a colony that has all its comb to build. This is not by way of saying that Mr. Aikin is wrong, only that in a matter of so much importance, he must do quite a bit of "showing" to convince those who hold the general view.

Our friends who produce both chunk and extracted honey in the same apiary might help to solve this problem. To one colony, or to a number of them, let drawn combs be furnished, so that no comb need be built; to an equal number let no comb whatever be given; at the end of the season melt the chunk honey and compare the wax secured from each.

White Clover Prospects

In white-clover regions there is always interest on the part of the bee-keepers as to what white clover will do in the season next to come. That interest seems more than usual this year, and the different views expressed show that we have not the most exact knowledge on the subject so as to tell in advance just what we may expect. There are different views as to the effect on future harvests, of drouth in summer, drouth in fall, winter freezing in wet or dry soil, and in the Bee-Keepers' Review, is a discussion as to the age of white-clover plants, by Harry Lathrop. Editor Hutchinson endorses the view that Mr. Lathrop thus sums up:

"White-clover plants one year old may bloom, but are of no value for a honey crop. White

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clover plants *two years old* furnish the crop. White clover plants *over* two years old are not in evidence in the production of a crop of honey. It takes a good spell of wet weather to germinate a seed crop—a few showers will not do it."

From this and what precedes, it appears that Mr. Lathrop considers white clover a biennial, and perhaps sometimes an annual, for he says:

"My conclusions are that white clover is not an annual; neither is it strictly biennial."

Very likely this is a common view. We are familiar with the fact that red clover must be reseeded every 2 years, and as there is little sowing of white clover, and we are thus not familiar with its habit of growth, we at once take it for granted that white clover is like red, a biennial.

Examine a red-clover plant. A leaf-stem may start close to the ground, or it may start high up on the stalk. The whole plant is connected with only the one root, and the whole affair, root and branch, dies outright in 2 years or less from the time the seed started.

Now look at a white-clover plant. Every leaf starts from close to the ground, never high up on a stalk like the red clover. A still more striking difference is that the white clover does something that the red never does. It sends out a stolon, or runner, just like a strawberry plant, which takes root at the end, thus forming a new plant, which in its turn may again send forth runners, and so on indefinitely. It would be interesting to know how many—rather, how few—who are familiar with strawberry-runners have ever thought of such a thing as a white-clover runner. It will thus be seen that a single white-clover plant in the middle of a 10-acre field, given years enough, might cover the whole field if it never matured a seed. Any bee-keeper who takes the trouble to observe the growth of white-clover the coming spring, will easily be convinced that the botany is right in classing white clover, not as an annual nor a biennial, but as a perennial.

That still leaves it a matter of interest to know what about the value of single plants of white clover of different ages. Who will tell us whether a plant, say 5 years old, is likely to be worth anything to bees? We know something in that respect as to strawberries. If we want to set out a strawberry-bed, we do not select old plants to transplant. If we start the bed in the fall, we use plants that have started from runners only a few days or weeks previous. And in general, an old strawberry-bed is considered of little value. Yet if the runners are kept cut off, a plant will continue fruitful after it has become old, forming a large stool, yielding abundance of berries. That makes it, if we are to reason from analogy, that an old plant of white clover may or may not be a good nectar-yielder according to circumstances, with the chances in favor of the younger plants.

Sealed Covers vs. Absorbent Cushions

We recommend sealed covers to the average bee-keeper because such persons will secure better results than with absorbing cushions. While Mr. Dadant may be able to do better without the sealed covers, it is our opinion that bee-keepers as a rule will do better by having the top of the hive sealed, and covered with warm packing. We have worked both schemes at our yard here at Medina; and while some years the absorbing cushions gave the better results, yet year in and year out the sealed cover comes out ahead."—E. R. Root, in Gleanings.

Is there not a little confusion about that "absorbent" business? Some use cushions with the idea that the air will slowly pass up through them, carrying with it all moisture. In that case there is no absorbing, and the cushions are hardly "absorbents." If there be no passage of air *through* the cushions, the moisture merely passing up into the cushions and condensing there, then the cushions are surely absorbents. Perhaps generally there is a compromise, part of the moisture passing out and part of it condensing in the cushions.

In any case, when the cushions become charged with moisture, there is advantage in drying them out when a favorable spell of weather comes.

The great harm with sealed covers comes about in this way: The cover is a single thickness of board, very cold, upon which the moisture from the bees condenses and falls in drops upon the bees. If cold enough, the moisture condenses as frost upon the under side of the cover, constantly accumulating until the weather becomes warm enough for it to melt, and then there is a small deluge. Something of this kind may occur even in a cellar, and it is easy to see that cold water falling upon the cluster is not conducive to good wintering. But there will not be the same condensation, if, as Mr. Root says, the sealed cover be "covered with warm packing." The point is that in the colder portions where bees are wintered outdoors, there should be cushions or packing of some kind, whether there be sealed covers or not. Whether that packing should be under or over the cover is not a point here considered. Possibly that ubiquitous factor—locality—may have something to say in the case.

In this connection it may be proper to say that in case of sealed covers there is not the same need of packing or cushions, if, instead of a single board, the cover be one of two layers of board, an air-space between. This, at least to some extent, takes the place of cushions, keeping the under part of the cover warmer in winter and cooler in summer.

Priority Rights in Imperial Valley

In the United States a man has a legal right to plant an apiary wherever he has a legal right to plant a potato patch. While some think that a man has a moral right to do the same wherever he has the legal right, a considerable number of bee-keepers think that no one has a moral right to establish an apiary in a field already occupied. Of this latter class there are not wanting those who believe that there should be legislation sufficient to secure by law what may be considered moral rights.

Without waiting for any legislation, the bee-keepers of Imperial Valley, in California, have determined, according to a report from J. W. George, in Gleanings, to punish any one who, in their judgment, unjustly encroaches on the territory of established bee-keepers. Imperial Valley, be it said in passing, is one of the richest spots on the face of the earth for bee-pasturage. As a preliminary step, an organization of bee-keepers has sent out a circular which reads in part as follows:

1. The average yield per colony of extracted honey for 1908 has been about 100 pounds, or about half as much as the two preceding years.

2. During the fall and winter of 1907, 5,000 colonies of bees were shipped into Imperial Valley, and now with those previously located comprise about 30 apiaries ranging in size from 50 to 300 colonies, and located all the way from one to 3 miles apart.

3. The second statement goes a long way toward explaining the first; for, while the shortage has been in part accounted for in various ways, the difference in the amount of honey obtained from different valley apiaries is easily traceable to the number of colonies kept in their respective neighborhoods.

4. The distance apart which apiaries may be run with profit in an alfalfa country depends altogether upon the amount of alfalfa grown in proximity to the apiaries, and the size of the apiaries. In Imperial Valley 2 to 3 miles is considered close enough.

Then at the October meeting of the Imperial Valley Bee-Keepers' Association the following resolution was adopted:

Resolved, That the adjustment committee be instructed to accept all bees offered to them, and to use said bees in any manner, and as long as they are deemed necessary for the purpose of discouraging any person from placing or maintaining an apiary at any place where, in their judgment, said apiary might be detrimental to the interest of any bee-man, who, by right of prior location, had the best right to said location.

"After the adoption of the above resolution," says Mr. George, "on roll-call every member present except 2 offered 10 percent of his bees for the purpose of carrying out the resolution," and Mr. George grimly adds; "It looks very much as if any one coming into the Valley and undertaking to override the custom here would get just what he deserves."

Put in plain language, the idea is that if any one improperly encroaches upon territory already fully occupied, he will be smoked out by having so many colonies set down beside him that his bees will harvest nothing, even if takes a tenth of all the thousands of colonies in Imperial Valley.

The outcome of this move will be watched with interest.

Editor Sick and Journal Late

Owing to two attacks of tonsilitis and one of "la grippe," the editor of the American Bee Journal has been laid up at home so that he was unable to get out this number earlier. It was his longest illness in nearly 20 years. He has been singularly fortunate in this regard, as the Bee Journal, even when it was published weekly, was never late on account of the illness of this editor. He hopes it may not occur again very soon; and also indulges the further hope that the readers may be patient and forbearing, for this issue, which is 50 per cent larger than usual, was really gotten out under difficulties and circumstances that are always most trying when the editor, upon whom falls the chief work, is scarcely able to be about on account of a sickness that is very weakening, and for a time continuously so.

American Bee Journal

Forty-Eight Pages This Month

We were simply compelled to do it. We had an accumulation of contributions, miscellaneous, "Beedom-Boiled-Down"-ings, etc., that we felt should be published, if at all, while our subscribers had the time to do more reading. The spring-work time will soon be here, when so many things will crowd in that much desirable reading will be pushed aside.

But we don't think very many readers will object to receiving the extra 16 pages we have given them this month. However, at the low subscription price of 75 cents a year, we could hardly afford to do this often, and yet it looks as if it might be necessary occasionally. We would be glad to issue a 48-page, or even a 64-page, number every month, if we could afford to do so. We hope to see during the next few weeks a great down-pour of renewal and new subscriptions, which surely would be an encouragement to us to repeat very soon this 48-page affair.

Apiaries of J. F. Diemer & Son

I send 2 pictures of our home yard. The small one was taken about 12 years ago. The small boy holding the large frame of bees is my son Guy. He found the queen and turned his head to tell me just as the kodak snapped. It got him just right, and Maggie was holding the sections of comb honey. We then had about 15 colonies.

The large picture was taken 4 years ago. We had just moved some bees from an outyard and didn't have them levelled up. We now have 200 colonies in Clay Co., Mo.

Guy and Mr. Goode, of Johnson Co., Kans., are busy now arranging for between 300 and 400 colonies of bees, and will keep them there. It is on the river and a splendid location, about 12 miles west of Kansas City. White clover in abundance, and also plenty of sweet clover and fall flowers. My place is one mile from Liberty, and 15 miles from Kansas City.

We run for extracted honey, using 8-frame hives and Italian bees. We had a big crop this year.

J. F. Diemer.

Liberty, Mo., Oct. 12.

It's "Grandpa Dittmer" Now

Yes, It's a fact. Gus Dittmer, of the Gus Dittmer Co., Augusta, Wis., is "tickled all over" because of the arrival of a grandson at the home of his son "Fred." It was born about Dec. 1, 1908, and its grandpa never let us know a word about it until Jan. 21! It is surprising how long some people can keep good things to themselves. We hope this will insure the continuation for a long time of the manufacture of the Dittmer comb foundation. Increasing demand for it will no doubt necessitate an increase in the membership of the Company manufacturing it. Almost any firm needs new blood injected into it occasionally, in order to insure its efficiency and continued progress. Our congratulations to "Gus," and all down the line of the Dittmer family.

The Detroit National Report

This report was mailed to the members of the National Bee-Keepers' Association about Jan. 10, 1909. It is a pamphlet of 130 pages, and contains, besides the report of the Detroit convention, a membership list of the Association with honey crop report; financial statements; report of the General Manager for 1908; and the Constitution of the National. It ought to be in the hands of every bee-keeper. A good way to get it is to send $1.00 for annual membership dues to the General Manager, N. E. France, Platteville, Wis., and thus not only receive a copy of this valuable book, but also become identified with the largest organization of bee-keepers in America.

Apiary of E. F. Koch

I send a picture of my apiary which I started about 4 years ago with a double-bitted ax and a soap-box. The trees in the picture are evergreen. You will notice the wind has been playing some kind of a game with my bee-tent. I have another yard to the right of the house. E. F. Koch.

Apiary of G. A. Barbish

I send you a picture of my apiary, myself, wife and baby. I started to keep bees about 8 years ago, but like other bee-keepers I had complete losses, which however, did not prevent me from starting over again.

I have at present 18 large colonies mainly in 10-frame dovetailed hives, running mostly for extracted honey. My bees are all Italians, and with the exception of 2 colonies are very gentle.

In the second row of hives you will notice a grape trellis running the whole length of the row. It shades the bees during the hottest part of the day, and it is fine for me to work, as robber-bees do not bother nearly so much as when working on the other row of colonies.

This has been a fairly good season for honey. White clover yielded well, but basswood yielded hardly any honey. There is a little honey coming in now from the second crop of red clover and fall flowers, but it will not amount to much, as it is too dry. I have extracted some over 500 pounds from 14 colonies, but I think I will get at least 200 pounds more. Now this would not be considered very much by an expert bee-keeper, but by taking everything into consideration—a novice in bee-keeping and not a very good locality—I think I do fairly well. Had I known years ago, when I started in bee-keeping, of the existence of such grand and helpful journals in bee-keeping as the American Bee Journal and others, I certainly would have been more successful than I have been, but now, with the aid of such valuable journals, and my past experience, I am, as Dr. Miller states it, gradually growing in the business. I

Apiary of E. F. Koch, of Collbran, Colo.

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now keep a record of all my queens and colonies, so I know exactly what is going on in each hive. I winter my bees in the cellar under the house, and the past years did not suffer any loss whatever.

I wish to say that I like the American Bee Journal very much, and will never be without it. G. A. BARBISH.

La Crescent, Minn., Sept. 3.

Uses of Honey

The following paragraphs appeared in the Philadelphia Press, on the uses of honey:

The action of honey on the teeth is not at all injurious as is the case with candy. Those who have tried it say that in preserving fruit, the formic acid honey contains makes a better preservative than sugar syrup. For throat and lung troubles, honey is excellent, in many cases superior to cod liver oil. It is also valuable in cases of croup and colds. As an external application it is irritating while clear, but soothing when diluted. It is laxative and sedative, and physicians say that in diseases of the bladder and kidneys it is a sovereign remedy.

In mead and harvest drinks, honey has considerable of the same effect as wine and stimulants, without their injurious effects. It is concentrated and easy of assimilation, and furnishes the same elements of nutrition as sugar and starch, both energy and warmth.

Mr. C. G. Chevalier, of Maryland, kindly sent us the above item. It would be well if bee-keepers generally would have it copied in their local newspapers.

A certain physician in the East, who for years was annually afflicted with "la grippe," began to use honey as a daily food, and since doing so has not had an attack of that affliction. Score another one for honey!

Beet-Sugar for Bees

J. Enclund, writing from Sweden, in Gleanings, says they have only beet-sugar, and he feeds about 1000 pounds to 60 or 70 colonies every fall, and the bees do well on it. So it would seem that at least sometimes beet-sugar is as good as that from cane.

Bachmann's Super

C. H. Bachmann has invented and patented a comb-honey super which has the advantage that when not in use it can be laid out in the flat so as to occupy only one-fourth as much storage-room as when fully put together. At one corner, upon the withdrawal of a pin, the dovetails pull apart, the other three corners having dovetails that act as hinges.

An Appreciation of Dr. Miller

In a letter dated January 14, 1909, Hon. Eugene Secor, of Forest City, Iowa, wrote the following paragraph in reference to Dr. C. C. Miller, whose latest portrait graced the front cover-page of the January number of this Journal:

"I am glad to see the genial face of Dr. Miller in the American Bee Journal for January, which I have just received. What a void will be left in the bee-keepers' ranks when he is gone. I dread to contemplate it. There is nobody in all the world to fill his place. He has given the greatest uplift to the profession of any man engaged in the production of honey. Long may be live!"

Mr. Secor is entirely right in saying "there is nobody in all the world to fill his place." Dr. Miller has a place all his own. He made it himself, during the many years of faithful and devoted service to the very best interest of bee-keeping. He deserves his place. No one can take it from him. In fact, we don't know any one who would want to try to take his place, for no one would be so selfish or so conceited as to think he could fill Dr. Miller's place. We all need to make places for ourselves. Each has a work to do that no other can do for us. If each does not do his own work, it will never be done. Some think that one's work is born with him, and that certainly is not a very erroneous idea. Each needs to get in close contact with his job, and stick to it until life's end. "Happy is he who has found his work. Let him ask no other blessedness. Labor is life." There is room for all—there is work for all—and all should be faithful to the trust that is given them in this work-a-day world.

The Bee a Winner in France

Mr. C. P. Dadant has kindly sent us the following bit of news from a French paper:

Among other European news, I have received information, through Mr. E. Giraud, of Le Landreau, France, of a vote taken, among the readers of a Paris daily, "Le Petit Parisien," for the 10 most useful domestic animals. The honey-bee was one of the winners. The vote ran as follows:

1. Horse	1,269,872	votes.
2. Cow	1,243,117	"
3. Dog	1,203,473	"
4. Hen	1,015,863	"
5. Ox	1,015,553	"
6. Hog	991,163	"
7. Sheep	746,303	"
8. Camel	629,859	"
9. Ewe	610,596	"
10. Honey-bee	523,843	"

As in the above vote there is double voting on two races—cow and ox, sheep and ewe—this really puts the honey-bee eighth on the list of useful domestic animals. The high vote concerning the dog is due to the fact that the herding of cattle and sheep with shepherd dogs is practiced a great deal more in Europe than in America. Every village has a number of dogs devoted to this useful purpose.

C. P. DADANT.

This is a very interesting item. We wonder what place the honey-bee would occupy if a similar vote were taken in the United States. The hens seem to be up pretty near the top in France. That is something "to crow over," or perhaps "cackle about."

Big Prehistoric Elephant

No, this is nothing about bees at all. But a bee-keeper is connected with it, and seemed to have an elephant on his hands, even if it was one that has been dead quite awhile. The following paragraph tells all about it:

REMAINS OF A MAMMOTH IN CALIFORNIA.

The remains of a prehistoric elephant of mammoth proportions were unearthed recently in the bed of a small creek in Puddingstone Canyon, half a mile north of San Dimas, by Prof. A. J. Cook, head of the department of biology of Pomona College, Cal., and Edward P. Terry, a student. The bone frame, which is in a fair state of preservation, measures 26 feet in length, and 16 feet in height, and what remains of each of the enormous tusks is 10 feet long. The parts of the huge skeleton that could be safely handled, were removed carefully to Claremont, and are to be placed in the museum of Pomona College. The discovery was accidental. The skeleton lay diagonally across the stream with only six inches of ground over it.—*Scientific American.*

Dr. Piero, of Chicago, ran across the above item in the Pacific Medical Journal, and sent it in for our columns. Prof. Cook seems to have a bigger thing than bees to look after now.

To New Jersey Bee-Keepers

We are asked to call the special attention of all New Jersey bee-keepers to the following:

Foul brood is rampant in many parts of New Jersey. In some localities it has swept out entire apiaries. This has been particularly true in Hunterdon county. It seems to be on the increase in some of the southern counties of the State. In one instance it was found scattered throughout a large apiary, and the owner was obliged to apply wholesale treatment to the whole yard last summer. Then there is scattered throughout the whole State the small, careless bee-keeper with 3 or 4 to a dozen colonies, and many of these are in old box-hives. The disease continually lingers among this class of bee-keepers. They do not attend any conventions, nor read bee-papers or bee-books, nor do they believe their bees have the disease. They are found in practically all localities, and the careful bee-keeper finds it impossible to keep his bees free from disease under such circumstances. Taking all these conditions into consideration, it is imperative that something must be done to stop the ravages of foul brood in our State.

The New Jersey Bee-Keepers' Association, through its executive committee, has prepared a foul brood law, and will have it presented to the legislature at its present session. And now comes our appeal:

The executive committee wants, and must have, the support of every interested and progressive bee-keeper in New Jersey; and that support we must have at once that we may get our law passed at the present session of the legislature, and in operation the coming season.

The present membership of the Association are a unit in support of the law, but the membership is small to what it should be. Twelve counties do not at present have a single paid-up member. We want to present a solid front from Sussex to Cape May, and from the Delaware to the Atlantic. "In union there is strength."

What would the executive committee say when we go before the legislative committee if asked, as we would likely be, "How united is the support of the bee-keepers?" We would have to reply that only 8 counties have members, and 12 counties are without a single member?

Then there are other reasons why we want to increase the membership. The more members, the more funds in the treasurer's hands, and that means more interesting and more practical programs. We are planning to hold a field-meeting next June, and a 2-day's annual meeting next winter.

Then if our membership increases and includes the whole State, we will be able to get an appropriation from the State, as we are a branch of the State Board of Agriculture. The present secretary of the State Board of Agriculture is in hearty accord with us.

Further, we are planning to make our Association more helpful and educative in marketing our honey. We have at our finger's end both New York and Philadelphia—two of the most extensive honey markets in the United States, besides many residential towns as markets for our honey. We must take better advantage of these.

We end with an appeal to every reader of the American Bee Journal in New Jersey, to join the New Jersey Bee-Keepers' Association at once. Dues are but 50 cents per year. Remit by post-office order or check to the Secretary-Treasurer. Act at once.

Also write a few lines stating your experience with brood-diseases, and how you are surrounded—if by any careless, box-hive bee-keeper.

Yours for a foul brood law in New Jersey for 1909, and for the advancement of the New Jersey Bee-Keepers' Association.

ALBERT G. HANN, *Sec.-Treas.*

Pittstown, N. J.

We want to emphasize the above appeal. It ought to be heeded by every bee-keeper in New Jersey. Write Mr. Hann *at once*, as he requests.

American Bee Journal

C. H. W. WEBER

C. H. W. Weber was born in Lemfoerde, Germany, April 25, 1844, where he lived until about 21 years of age. About the year 1856 he came to America, and straight to Cincinnati. He was employed by Chas. F. Muth & Son, where he acquitted himself very well, as was shown later. But he was anxious to go into the merchant trade for himself.

In 1868, Mr. Weber entered the grocery and seed business. After a successful pursuance of this business, the Chas. F. Muth & Sons Co., sold out to him. Thereupon Mr. Weber became greatly interested in bees and honey. He personally took care of 3 apiaries which he conducted on the outskirts of Cincinnati. During his spare time he was incessantly planning improvements. His "Entrance Controller," which was patented September 24, 1907, was only one of the many results.

Under his careful supervision, and with the aid of his son Charles, he built up quite an extensive business in the bee-keepers' supplies and honey line. After a time the equipments which he had been using for filling honey bottles were no longer capable of turning out enough goods for the demand that had been created for them. Immediately Mr. Weber began plans for improvements. After careful perusal of all that the could find concerning the matter, and after earnest thought, he successfully set up an apparatus that is capable of doing any amount of work. It is a perfect piece of mechanism, filling 6 bottles at a run. All this was done during the last year of his life.

Mr. Weber also took care of quite an extensive seed business, and by the fine attention he gave his trade he gained many friends among the farmers near Cincinnati, as well as in Kentucky and Indiana, who greatly mourn the loss of so esteemed a friend.

After his return from the National Bee-Keepers' convention in October, held at Detroit, Mr. Weber underwent a delicate operation. He seemed to rally unexpectedly well for a few days, when he had a very serious attack of pneumonia. With good care, and a physician's skill, he was helped quite a little. He seemed to be recovering nicely when another attack of pleurisy and pneumonia weakened him. It was with the utmost skill that his body was cleared of this terrible sickness, but he was in such a weakened condition that he failed to recover satisfactorily, and on Jan. 1, 1909, the end came to his earthly suffering. He leaves a wife and 7 children who mourn the loss of a dear husband and father.

We had the pleasure of a personal acquaintance with Mr. Weber for many years. Through his advertisements, and otherwise, in the American Bee Journal, he was well and favorably known to hosts of bee-keepers. He had made a reputation for honesty and square dealing, which brought him a large and well-merited patronage along the lines of bee-keepers' supplies, honey, seeds, etc. It may not be generally known, but for years he has had an apiary of 40 or 50 colonies on the flat roof of his store-building in the heart of the business district of Cincinnati. We had the pleasure, several years ago, of visiting his apiary and viewing from its height the large range of territory from which the bees gathered many tons of honey.

Mr. Weber was an enthusiast in all the lines of business in which he was interested. He was very quiet and unassuming in his manner, but always won his share of the patronage of bee-keepers and others who desired to deal with a firm whose responsibility and reliability were unquestioned.

Mr. Weber attended several of the National conventions of bee-keepers during the past few years. He was a staunch friend of the American Bee Journal and its editor, who greatly valued his loyalty and devotion. We are glad to know that his business is to be continued by his son Charles, who, no doubt, will follow in the footsteps of his father, and continue to maintain a prosperous business at the old stand.

The sympathy of thousands of bee-keepers all over the land will go out to Mr. Weber's family in their bereavement.

THE LATE C. H. W. WEBER.

August Josephson.

Mr. August Josephson, formerly of Lockport Ill., but for the last two years of Granville, died in November, 1908, at Waukesha, Wis., where he had gone for his health. Mr. Josephson had been engaged in bee-keeping for a number of years, and was very successful. He was born in Sweden, Nov. 7, 1867, and came to America in 1886. He was active in church and Sunday-school work, and was highly respected where he lived. He leaves a widow and five children, all of the latter being under 10 years of age. Surely his bereaved family will have the sincere sympathy of all their bee-keeping friends and others who know them.

Mrs. Wheeler D. Wright.

After an extended illness, K. Eliza Wright, of Altamont, N. Y., passed from this life December 26, 1908, at the age of 55 years. She was the wife of W. D. Wright, one of the efficient foul brood inspectors of New York State. Mr. Wright will have the sympathy of all his bee-keeping friends in his bereavement.

Richard Stolley.

Mr. and Mrs. William Stolley, Sr., of Grand Island, Nebr., mourn the loss of their youngest son, Richard, who passed away on December 30, 1908, at the age of about 41 years. He was the support and hope of his parents in their old age. His father is well known to many readers of the American Bee Journal.

There were 175 vehicles in the funeral procession. The cemetery is located over one mile from his father's home, and when the first of the procession arrived at the open grave, the last of the

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vehicles had not yet left the home grounds.

During his life he "saw the buffalo disappear and the red man take his flight; he saw the herds go and the farmer take his place; he saw the little settlement known as Grand Island, grow to a city of 10,000 inhabitants; he saw the desert wastes made to bloom as the rose; and he saw the ignorant barbarians supplanted by the scholar and the school. * * *

"With a heart of love he lived for others, and was unmindful of himself. He has left the world better for his living, and has thus not journeyed here in vain. He loved his father and mother, and hoped to live that he might be as a staff unto them in their declining years." These are the words of one who spoke concerning the life of Richard Stolley. The earnest sympathy of a host of friends will go out to the sorrowing family in this their time of mourning.

Duncan Cameron McLeod.

D. C. McLeod, of Pana, Ill., died December 3, 1908, at the age of 81 years. He and Mrs. McLeod celebrated their 50th wedding anniversary last July. He had been a bee-keeper for many years, and a reader of the American Bee Journal.

R. B. Holbrook.

R. B. Holbrook was a member of the Chicago-Northwestern Association, and attended its last meeting in December, 1908. On account of continued ill health and despondency, he committed suicide January 4, 1909, at South Elgin, Ill., by shooting through the head. Unlike most suicides, Mr. Holbrook had made careful preparation for the step, and his earthly affairs were all well settled before he ended his life.

Mr. Holbrook was 45 years of age, and for several years was a prominent bee-keeper at Mayfair, Ill., (a Chicago suburb) from which place he moved to South Elgin, with 100 colonies of bees, several months ago.

In a note to his wife he gave explicit instructions as to the conduct of her affairs, advising her to continue to care for the bees, but to dispose of their poultry-business.

Mr. Holbrook had been chief engineer for several large firms in the East before coming to Chicago several years ago. At 15 years of age, when most boys are building up their bodies, he was compelled by death of his father to go to work to support the family, and under the severe strain his health became impaired. When later in life he found his health failing rapidly, he gave up his engineering work and moved to Mayfair, where he took up bee-culture as a business. When he and his wife decided to add chicken-raising to their bee-keeping they needed more room, and so purchased a place at South Elgin last fall.

Mr. Holbrook was a very pleasant gentleman to meet, and took a deep interest in the conventions of the Chicago-Northwestern Bee-Keepers' Association. His name will appear quite often in the published report of the last meeting, which will soon be issued in connection with the report of the Illinois State Bee-Keepers' Association. Mrs. Holbrook will have the sympathy of all in her untimely and unexpected sorrow.

Conducted by EMMA M. WILSON, Marengo, Ill.

Putting Hives Together Almost Putting Married Folks Apart.

The nearest to a quarrel that "my John" and I ever came, after 25 years of married life, was when we came to put together the bee-hives we purchased last spring. There were at least 100 pieces for each hive, and the hives were entirely different from those I had, so it puzzled us considerably to fit the pieces together to comprise a whole hive. Several pieces I was sure went one place, and he thought another. We settled the matter of the 3-cornered blocks for contracting the bee-entrances, by writing to the manufacturer and asking what they were for.

After much wrangling we built our hives. So take my advice, and buy them built and save a divorce-suit. OHIO BEE-WOMAN.

The carriage on such bulky articles as hives made up is so heavy that it might be as expensive as a divorce-suit. Possibly the expense is not the only item, and if you set so much store by your John that you don't want to lose him, get hives without so many pieces.

The 8 or 10 frame dovetailed hives would fill the bill. They are so simple in construction that no divorce-suit could possibly grow out of their building. If, however, you must have a 100-piece hive, get a single one ready made as a pattern, and the rest "knock-down."

The Miller T-Super.

"A Reader" (page 24) seems not entirely suited with the T-super. As it was one of the first he tried, it is quite possible that his inexperience had something to do in the case, and that if he were to give it a trial now it might please him better. In this "locality" we have found nothing better, and we have tried perhaps a larger number than has "A Reader."

His chief objection is that the exposed surfaces of the sections are "bee-stained." It is true that bees have the chance, if they will, to cover the entire top and bottom with bee-glue. But bees do not care much to plaster bee-glue over a plain surface. Their greatest delight is to plug it into all cracks and crevices. So it happens that the first supers taken off may be about as clean as when put on, whereas when tops and bottoms are protected they manage to crowd into the cracks some bee-glue in spite of the coverings. Even if, later on, the bees should glue the plain surface, it is easily cleaned.

"A Reader" speaks of "sandpaper dust, which is not wholesome, all over the comb honey." He must have made very awkward work to accomplish that. We do things better here, as he would easily believe if he were to see the beautifully clean sections that always command the highest price for fancy.

He thinks the T-super not up-to-date, and a time-killer. Well, we make some effort to be up-to-date in this locality, have given trial to a number of supers, and an experience of a number of years with 1000 T-supers ought to count for something against his experiences when a beginner with a single super, or at least not a large number.

As to its being a time-killer, something may be judged from our last season's work. Two of us—neither very strong—with very little outside help, harvested nearly 20,000 sections of honey and that with the T-super. But we are not interested in that, or any other super, only so we get the best results, and if "A Reader" will mention just a few of the *many* supers that he says are *far superior*, and if among the many we can find just one that is even a little better in getting good results and in saving time, there is nothing to hinder our making a change. E. M. W.

Tincture of Myrrh for Bee-Stings.

After trying solutions of soda, salt, and carbolic acid, all in turn, for poison from bee-stings, and receiving no benefit whatever, after going 3 days with one eye swollen shut and the other nearly so; after the children cried for their mother, failing to recognize me, I read this cure for bee-stings:

Apply tincture of myrrh as soon as you are stung, and all pain and swelling will cease instantly.

And what made me provoked was that on my pantry shelf stands a large bottle of tincture of myrrh, which has been there all summer. It is not likely that I will be stung again this year, for I have "put my bees to bed" for the winter, but will send this in for some one else to try.

OHIO BEE-WOMAN.

Pays to Read a Bee-Paper.

One time I went to the phone and said, "Hello, hello, is this 24 K?

"Yes."

"This is Mrs. Brown, and I am getting subscribers for the American Bee Journal."

"How much a year?"

"Seventy-five cents."

"Well, guess I can't afford to pay that much. I know enough about bees now."

"But the Journal will teach you more; how to get more honey, to rear new

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queens, and to get more honey out of your bees."

"Aw, well, I will let the bees take care of themselves."

"All right, good-bye."

"Good-bye."

A few days ago I was called to the phone by 24 K. He said, "Mrs. Brown, I forgot to put on any sections, and the top of the hive is solid with honey. I can not get the cover off. What shall I do?"

I said, "I don't know. Guess you will have to let the bees alone. They will take care of it. But say, I will look over my year's numbers of the American Bee Journal. I will surely find what to do, for they tell everything about bees, and how to care for them. Say, best sell me those bees. I will care for them next year. I will call up when I find what to do. Good-bye."

"Good-bye." MRS. B.

Uneasy Sister—Husband Taftlike in Appearance.

DEAR BEE-SISTERS:—What shall I do? John is getting very fat and portly, excelling our future president Taft, caused I think, from eating a generous supply of my white clover honey each meal. I am sure he does not groan and complain over every little ill, as all men do, since I have provided the honey for the table, for John and the bees do not get along. They seem to know they have come out victorious, for they have put him to flight often.

OHIO BEE-WOMAN.

Bottling Extracted Honey — After-Swarms—Hive Crowded with Honey —Entrances to Prevent Swarming.

DEAR MISS WILSON:—Kindly give me directions, as explicit as possible, in regard to bottling extracted honey.

1. Must the honey necessarily be heated? To what degree? And what is the best method when one has only a cooking-stove on which to heat it? What sort of thermometer is used, and is the temperature told by thrusting the thermometer into the heating honey? What is the object of heating the honey? Should all extracted honey be heated *before selling?*

2. September 30 a swarm issued from one of my colonies. To prevent after-swarms, I moved the old hive to a new stand. The next day, when I examined the old hive I found 2 young queens on the same comb, and 2 others hatched out while I looked over the frames. The hive was still brim full of bees, few, apparently, having returned to the old location. Afraid of swarms led by virgin queens, as they always alight in inaccessible places, I divided the colony into nuclei. Was it necessary to do so? Would the young queens have destroyed each other until only one remained? I did not care for the increase, but divided simply to prevent losing the bees. Will moving the old hive to a new stand always prevent after-swarms?

3. This fall my colonies filled their 10-frame brood-chamber full of honey, 10 frames of solid honey. Is not that *too* much for them to have, as it will not leave room for the queen to lay? The last of February or the first of March they will begin gathering again. Brood-rearing has stopped now, but I am afraid the queen will want room in which to lay, and that the hives will not be full of young bees for our early spring. They fly almost every day in the year, so, of course, they eat more than when the weather is severe.

4. What is the best way to provide more than one entrance for the bees in the different stories, to prevent swarming?

"LOUISIANA."

1. If honey is granulated, it is heated for the purpose of bringing it to the liquid state. If heated too much it is ruined. It is better not to be heated beyond 160 degrees. Any ordinary thermometer may be used to thrust into the honey, a dairy thermometer being most convenient. A thermometer, however, is not very necessary. The thing to do, where one has a small quantity to heat on a cooking-stove, is to heat it so slowly that there can be no danger of overheating. The vessel containing the honey may be put inside a larger vessel on the stove, the larger vessel (which may be a dripping-pan, although it is better to have something deeper) containing some water and a bit of shingle or something else so that the smaller vessel shall not rest directly on the bottom of the larger one. The honey may be stirred from time to time, as without this the central part will remain cool while the outer part is quite warm. It is safer to have the honey on the back part of the stove, where the heat is not great. A very safe plan is to set the vessel of honey on the reservoir of the stove, with no outside vessel, where it may take several days to liquify.

Generally, however, honey is not heated at all when being bottled, if it is not granulated. Some, however, heat it, and then seal it up, so that it may longer remain free from granulation.

There are a few localities in which customers prefer to have the honey granulated. Of course the honey must be sufficiently liquid to run into the bottles.

2. If the bees of your mother colony had any notion of sending out an after-swarm, only one queen would have been allowed to emerge, the others being held prisoners in their cells until the first or free young queen left with the swarm. So the fact that you saw two queens on the comb showed there was no intention of further swarming. Even if the hive seemed brim full of bees, you may be sure that all the field-bees after the removal went back to the old spot, and the fact that no honey was coming into the hive would discourage the bees against further swarming, even if the whole force remained.

If the swarm and the old hive are on practically the same stand, and a week later the old hive is moved to a new stand, you may generally count there will be no more swarming; but in some places there are exceptions.

3. If you really mean that the 10 frames are literally filled with honey, it is just possible that the queen may be crowded for room next spring. That, however, is a very unusual occurrence, for when brood-rearing begins in spring the consumption of honey is enormous. Keep watch in spring, and if you find every cell occupied either with brood or honey, take out a frame of honey and put an empty comb next the brood-nest.

4. When running for comb honey it will not do to have entrances to the different stories, although we sometimes leave an opening under the first super at the back of the hive. You, however, probably refer to extracted honey. Shove the second story forward enough to leave a space of ¼-inch at the back end. Shove the third story back enough to leave a like space at the front end. Do so alternately with all the stories, and finally shove the cover forward or back to leave a space on top. Strictly speaking, these are not entrances but ventilating spaces, for the bees seldom use them as entrances.

"My John" and the Bees.

I send you a pen picture of my John, who is so afraid of a honey-bee. Would that I had a kodak, and I could have sent you a very funny picture.

One very warm morning in July, I heard faint yells in the direction of the apiary. Hastening out I saw legs beneath a quilt that was hanging on a line near the apiary. Investigating closer, I found it was my John who had taken refuge under the quilt, as in a little tent. Louder yells reached me. "Come quick! The bees are after me!"

I hastened out with broom in hand. Vainly did I bang at those bees, often banging the quilt, which only brought forth more yells, such as, "Can't you hit them?" "I am nearly smothering;" and other words that would not look well in print.

At last I murdered all the bees that were near, and John came out of his tent and fanned himself.

That evening he was sitting on the porch. I heard yells again; also a loud bumping. I ran out and John lay on his back fighting a bee with his straw hat, his elbows as they came down on the porch floor making the loud bumping. I went to his rescue and killed another little bee.

He stayed in the house after that. Some way the bees don't care for John.

IMA.

American Bee Journal

Conducted by J. L. BYER, Mount Joy, Ont.

Good Winter for Bees.

The weather here in Ontario, so far this winter, has been all that could be desired, as far as the wintering of bees has been concerned. Although there have been no days since the last of November, that they could fly; on the other hand, there has been no very cold weather; only once has the thermometer got down to zero here in York Co., and then that was but for one day. Hives were heavy with buckwheat honey last fall, and while I have seen heavy losses when those stores were so much in evidence, yet in nearly every case there was some honey-dew present, too. Last season, as far as I could see, there was not a particle of this article gathered, and, as a consequence, barring unforeseen circumstances, we look for good wintering.

Alsike Clover and Prospects.

Alsike clover, which is our main dependence here for honey, never went into winter in better condition than it did last fall, and with honey at present good prices, the outlook for bee-keepers next season is certainly not discouraging. However, we have learned that "prospects" do not make good crops, always; yet, on the other hand, we rarely get a crop unless the "prospects" are previously in evidence.

Dr. Miller and His "Forty Years."

Perhaps I should be ashamed to confess it, but the truth is that previous to the past few weeks, I had never read Dr. Miller's "Forty Years Among the Bees."

What do I think of it? Well, we always anticipate pleasure when we begin to read anything from the pen of Dr. Miller, and in this case it is needless to say that I was not disappointed. Not that it is a comprehensive work on bee-keeping—indeed, the author makes no such claims for the work; but somehow the easy conversational style of the book is infectious, and as we get glimpses into the home life of one known and loved by thousands of bee-keepers, a desire involuntarily asserts itself to "go thou and do likewise."

The author apologizes for the short biographical sketch which he says the publisher insisted on printing. Well, if that is the case, our hearty thanks are due the said publisher, as the biography is one of the best parts of the book.

The "grit" and determination shown by our genial friend, in his struggles for an education, cannot help but be an incentive to all young people who read the story, whether their prospective calling be bee-keeping or any other profession.

Of course there are some things in his bee-keeping instructions that we would not all agree with, but that simply adds interest to the work, for who ever heard of two bee-keepers who would not differ on a good many points as to how best to manage the bees?

Dear reader, if you have not yet read the book, by all means do so at your earliest opportunity, and be benefited, as the writer most assuredly has been by its perusal.

"Shaking" Work Into Bees.

Just at present there is quite a stir again among correspondents in bee-papers, over the now-quite-old idea of "shaking" bees to secure various results. Geo. W. Williams, in the Review, advocates shaking all the bees out in front of the hives during the honey-flow, and claims that colonies so treated will give a much larger surplus than if they had been left alone. The idea is that this treatment puts the colony in much the same condition as a newly hived swarm, and that they will then work with the vigor so characteristic of bees in the latter condition.

I do not know if there is much in his contention or not, but I do know that the "shaking," so much advocated a few years ago, is not now nearly as popular as it was at that time. This much I have learned by private conversation and correspondence, and many who were former enthusiasts of the system have discarded it almost entirely, while others who still practice it have modified the original wholesale methods, more or less. While the plan has some advantages, a continued trial of it soon reveals the fact that there are many disadvantages as well.

Cellar Wintering of Bees.

As mentioned more than once in these columns, the writer has had but little experience in cellar-wintering. However, during the past few winters, as I have been wintering part of one apiary in a cellar, I am beginning to know some of the perplexities of the indoor system. Just when to take the bees into the cellar is one of the hard things to decide, sometimes, as the past fall gave ample evidence.

While going to the Ontario convention this fall in company with that veteran bee-keeper, J. T. Storer, we were discussing this subject, and although it was but Nov. 10, I found that he had already put his bees into the cellar. While the writer thought it too early, Mr. Storer thought otherwise, as he said he felt pretty sure that the bees would not get another flight this fall. Subsequent events proved that this was not the case though, as shortly afterward the weather moderated, and the bees had frequent flights right up to the last day or so in November.

Naturally, I was feeling pleased that my bees were not in the cellar, when circumstances unexpectedly came that made it impossible for me to put the bees in the cellar till Dec. 10, after they had been exposed to 10 days of pretty cold weather after their last flight. Just now I am wondering if they would not have been better off in the cellar early in November.

The December issue of the Review, shows that even men like Mr. Hutchinson have their troubles in this line sometimes, too. He had to move some bees quite a distance to a cellar, and to make things so that the bees could not fly out while being hauled to the cellar, a half-depth body was put under each hive, the bottom of each of these extra bodies being screened. After the bees were all ready for moving, and the hives were facing every direction, the weather turned warm very quickly, and before the bees could be put into the cellar. The result was, that the bees were in an uproar, and as the hives had been shifted off their stands, it was impossible to give them a flight. They were put into the cellar and Mr. Hutchinson says they simply "roared" for a few days till the weather turned cold again. He anticipates no trouble as a result of this disturbance, but personally, believe I would be a bit uneasy if it were my bees in a like condition.

The nature of the stores in the hives will largely determine the outcome, and as we are told that they are of the best, in the case of the bees under discussion, the chances are that Mr. Hutchinson's prophecy will prove to be correct. Anyway, I hope so, and the result will be looked for with interest next spring.

Methinks as a certain good friend near Buffalo read of the hives being so fixed that the bees could not get out into the cellar, that the "smile that won't come off" must have been in evidence; for be it remembered, not so long ago, a certain editor characterized the Hershiser bottom-board as a "harmless invention," and now we find something on exactly the same principle being used by the said editor. Well, "all things come to those who wait," and our Buffalo friend will now be satisfied with his revenge, even if he did have to wait a long time for it.

Apicultural Experiment Station.

At the Ontario Bee-Keepers' Convention, held in Toronto last November. Secretary Hodgetts stated that the Ontario Department of Apiculture was considering the advisability of establishing an experimental apiary somewhere in the Province, in the near future. Now comes the announcement that the Station is to be at Jordan, Ont., where there is already a farm carried on for experimental purposes, mainly up to the present, for the advancement of fruit-culture, an industry for which the Niag-

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ara district is famous. Of course, the bee-keeping program is yet in embryo, and announcements as to the probable line of investigations to be carried forward, will be looked for with interest.

A station of that nature, properly equipped and "manned," cannot help but be a source of great benefit to the Province at large, and the project will no doubt have the hearty co-operation of all Canadian bee-keepers. One of the most important things necessary to make the scheme a success, is to see that a *thoroughly* competent person is in charge of the work. Barring that essential, everything else being perfect, an experimental apicultural station would be a negligible quantity. It is to be hoped that when an appointment is made, that that thought will be uppermost in the minds of "the powers that be."

Foul Brood Treatment — License to Keep Bees.

Seeing an article on page 339, "Feeding Sugar Instead of Honey," has caused me to ask you a few questions.

1. How did your friend positively know that his bees were free from the disease of foul brood?

2. In following the McEvoy plan of treating this disease, I have followed all directions to the letter, and the bees have passed to nice, clean, white, full-capped combs of new brood, and are hatching nicely. At what length of time and under what conditions may I look for the disease to reappear? All parts of the hive are new.

3. If in shaking on comb-foundation the second time you were to find only 3 cells of diseased brood on one frame in this second set, would you remove only the one frame, or would you shake the third time?

4. Do you think this shaking treatment in the hands of the average person who keeps bees in the "any old box or hive plan" would check or spread this disease?

5. Should this treatment be used by any but an up-to-date or expert handler of bees? (If so, that lets *me* out.)

6. How long after we see the slim, glossy, shining bees crawling in front of the hives out in the grass to die, may we look for the disease to appear, and does this always happen? I think this is one of the first symptoms in a wet, rainy season. I mean the crawling out to die.

7. If a colony of bees not treated should show all the symptoms of American foul brood during a hot, wet season—say June or July—and then when the rain stopped and the bloom came, and they should clean out all the decayed cells and fill up full of clean brood, and put in a super of fine honey, all the brood hatch, and they should build up strong with bees by October 1, and have plenty of stores for winter, and you could not find any trace of the disease except the odor or smell, what should be done with the honey?

8. What would you think of a license to keep bees, and in the license stipulate that none but movable frames were to be used? They would be much easier to inspect than old washing-machines or salt-barrels or soap-boxes. The license would help to pay the inspector.

C. B. PALMER.

Bradshaw, Neb., Dec. 7, 1908.

1. Foul brood is *very* easy to see in new white combs, and might be detected by the veriest novice, while the more experienced person would possibly overlook the disease in an old black comb. In the case you refer too, a thorough examination was made by the inspector and no signs of the disease was found.

2. If abundance of honey is coming in, and some of the diseased honey has been left with the bees, the disease may not appear for some time; but, on the other hand, if nothing much is coming in from the fields at the time of treatment, signs of the disease will nearly always appear in the first generation of brood, and usually the larvæ will be dead before sealing. These remarks assume that the treatment has not been properly done, for if done right the disease *will not* appear again, i. e., if there is no robbing or other source of outside infection present.

3. Extremely risky to take out but the one comb, but in the hands of a careful person it might be tried, and results well watched.

4. and 5. No one should attempt the treatment unless fully understanding the same. Once the principles of the cure are understood, the treatment is simplicity itself. The handling of colonies in box-hives when treating, is a source of danger at all times when foul brood is present, and no tearing apart of such hives should be attempted except when honey is coming in from the fields to keep the bees from robbing.

6. I do not think the symptoms you mention are common to American foul brood, at least not in our "locality." Some other cause is clearly apparent for the condition of the bees as described. Personally, I could never tell by the outside appearance of a colony if the disease were present. Of course, if a colony is very weak at a time when they should be strong, one's suspicion will be aroused.

7. Bees never to any extent clean out the dried-down scales of American foul brood, for the simple reason that they appear unable to do so. With European or black brood the scales do not adhere to the cells so closely, and the bees do often remove them. Under the conditions you mention, I would strongly suspect that there was no disease present, and would lay the blame to starved brood due to the long spell of wet weather.

8. I would be entirely in sympathy with such a move. The Ontario Foul Brood Act gives inspectors power to order any bee-keeper, when disease is present in the apiary, to have all colonies on movable-frame hives inside of a given time stated by the inspector. The law should go farther and make it compulsory for all bees kept by anyone, to be on movable frames at all times. But say, some of the so-called movable-frame hives in some yards, are about as bad as box-hives, as the frames are often "movable" only when a crow-bar or something else as formidable is brought into requisition.

By W. A. PRYAL, Alden Station, Oakland, Calif.

Legislating for Bee-Keepers.

It looks as if the University of California will succeed in having the present law relating to bee-diseases so amended that it may be said to be an entirely new law. It will be a hot one, and will make some one stand around, even if it does not drive the dread diseases from the State. It will put up some pretty strong bars to keep diseased bees, including queens, from coming here. All colonies, nuclei, queens in cages, etc., coming into the State, or passing from one county of the State into another county thereof, must be accompanied with a certificate of good health before they can be admitted. This is much like the law relating to fruit-trees which was adopted here a number of years ago, and is now to be found on the statutes of all or nearly every State in the Union.

Mr. Ralph Benton, of the Agricultural Department of the University of California, is working strenuously to have this law enacted; in fact, I believe he drafted the bill which is probably before the Legislature by this. The bill also provides that an annual appropriation of $2,500 be made to carry on the work, which is sought to be placed mainly in the hands of the apicultural division of the University. The person to be named by this institution may be said to be Head Inspector of Apiaries, and will have co-extensive authority with the inspectors appointed by the supervisors; he may appoint deputy inspectors where the counties fail to do so.

I read the proposed law casually when on a visit to Mr. Benton's office at the University; some portions I approved, and others I did not like. The matter has been brought before several of the bee-keeping bodies of the State and was approved by them. While I am in favor of laws to stamp out foul brood, I think, however, it unwise for the State to be creating too many officers for such purpose. Either wipe out the county inspectors and turn the University corps loose upon the State to work scientifically, if it is possible so to do, or let the present law alone.

A Plea for a Revised Nomenclature.

Queer, isn't it, how the pursuit of bee-keeping has been loaded with some terms entirely unfit for the purpose they were intended to serve. I arise to post a motion (I guess that is about the best way to get it before the world) to have the next National meeting of our apiarists appoint a committee of five of the ablest men we have (I beg to

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decline, I can't serve) to revise our nomenclature, and coin such new words and terms as our noble pursuit may require. Such men as Dr. Miller, Prof. Phin (if he's living), and, say, the editors of our bee-papers, would be just the caper; what wrestling they would have! Now, all this talk, or whatever you choose to call it, was brought to my mind for the thousandth time when thinking or considering that disease called "bee-paralysis." Fudge! We all know that it is not paralysis. And, further, we are all at sea as to what the disease, malady or whatever it is, really is. I've tried to get expert evidence in the case for some time, and I have come to the conclusion that I know as much about the disease as the next fellow, no matter how smart a chap he may be. (Pardon me, Professor, I didn't mean you.)

Well, it's no wonder I'm "hot in the collar"; I had a couple of cases of what some would call paralysis. The books I've read when looking up facts, figures and other statistics to illuminate my benighted knowledge, yea, and not even the wise men I consulted, have been able to give me any knowledge worth a fig upon the subject. I am no pathologist nor anything with such an ending, but I venture to say that if some one could only take those sick bees and hold their mouths open long enough to pour a good dose of castor oil or epsom salts down their throats, they would soon be well and kicking as lively as crickets. What we need to do more than we do, is to keep the feet of our bees warm, their heads cool, and see that their bowels are free and open! Just in those last few words I verily believe lies the illuminated wisdom on the whole subject.

What a pity for us 'tis that Dr. T. B. Terry hasn't devoted his time to bees instead of the details of the barn-yard, and the mysteries of the human system! He would have known long ago what goes through a bee, and if he found an obstruction he would say, "Gee, haw, there!" and away would go the trouble just as "slick as greased lightning."

Bloated Bees.

A peculiar malady occasionally attacks bees in this part of the State; it has some of the appearance of dysentery, and yet none of the bees so far forget themselves as to muss the inside of their nest, in which respect they would have met the approbation of that astute scientist, William Shakespeare. No, they bloat up and seem to prefer death outside the hive rather than leave any nastiness in the hive. And it would be all right if they got outside the hive and were able to attend to the wants of nature, so therein lies the cause of the trouble—just a case, probably, of constipation. Yes, it seems to be that and nothing else, hence my remarks elsewhere about administering a laxative to sick bees. I believe a diluted honey into which is added a small quantity of senna or some salts that would not be injurious to the bees, would effect a cure.

I'm going to try some experiments on them along these lines. Large numbers of bees die in fair as well as cloudy and rainy weather; it would seem that half a colony in a couple of cases have already been decimated in this way. I believe that it is only in colonies where brood-rearing is in progress that the trouble manifests itself, hence it seems to me that the afflicted bees are the nurse-bees. Probably they suffer from some injurious pollen they ate; I notice that whenever I dissected one of these dead bees, it contained a lot of feces of a pollenly nature. A food of a purgative nature might save bees thus afflicted. Who has experience along such lines?

Some California Bee-Keepers.

The small group of men in the half-tone engraving herewith was taken at the railroad depot, Monterey, a few hours after the adjournment of the bee-keepers' institute held there Dec. 28 and 29, 1908. An attempt to get the entire gathering just after adjournment proved abortive, owing to the hazy condition of the weather at that particular time. By this mishap Mr. Ralph Benton, Mr. Andrew Fife, Mr. Sem Ling, and a couple of others who were in attendance, are missing from the photograph here shown. Mr. Benton had gone to Pacific Grove and the others to other places.

The tall man in the group is Vernon Townsend, president of the California Central Counties Bee-Keepers' Society; next on the right is Edward Smith, next standing well in front, is H. H. W. Lawrence; then John Witham, and at the end K. M. Hennehen, foul-brood inspector for Monterey county. At the extreme left is Mr. B. Schnuchel; the name of the gentleman between the latter and the president, is forgotten.

A portion of historic Monterey bay shows between the railroad tracks and the distant sand dunes on the left. The bee-keepers shown form an historical group in one of the most historic spots in California.

BEE-KEEPERS ATTENDING A CALIFORNIA CONVENTION.

In Old Monterey with the Bee-Men.

At the close of the year I made a trip to Monterey, the ancient capital of California, to attend the bee-keepers' institute. Those days were cold ones for this State, but we should expect such weather at the end of the year. I expected to meet Mr. Ralph Benton at the Oakland station; he went on an earlier train, and over the long stretch of marsh on the Alameda side of the bay. I got off an hour later and fell in with a lot of teachers going to San Jose by the Niles or foot-oft-he-hills route to attend the annual State convention of pedagogues. The ride was through a charming fruit and agricultural country. This gave me an opportunity to stop over an hour or so and see something of California's Garden City before I could proceed to Monterey on a train coming from San Francisco.

The attendance at the institute was not as large as was anticipated. It appears that sufficient notice had not been given of the meeting in the local papers; the San Francisco papers gave good notices but only the day before the meeting—too short a time for many who saw it to make arrangements to attend. Withal there were so few apiarists present, the interest was keen and enthusiastic. Mr. Andrew Fife, who has an apiary in Lassen County,

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where the snow lies deep during winter, was present; he had the distinction of owning bees 300 or more miles away from the place of meeting.

Two notable personages of Monterey were present. The one who attracted the most attention was Mr. Sem Ling, a worthy, though probably a very distant, cousin of Ah Sin. But Sem Ling's mission in the world is not of the kind that chimes in with those of the astute and very acute poker-playing Ah Sin, for our friend Sem Ling is a keeper of bees and a producer of garden-truck. So of Sem Ling and his manner of work I shall discourse further in time. So also of Mr. K. M. Henneken, the foul-brood inspector of Monterey County, who was a picturesque character, and spoke right out in meeting frequently. His discourse on Bee-Disease in his county revealed the fact that the way of a foul-brood doctor—at least in his part of the State—is not altogether strewn with roses. More than once he had to "hike" o'er the sands of Monterey at the glistening sight of a big double-barreled shotgun. And this will be a tale I shall unfold in some future issue of the American Bee Journal.

What would probably have been two very interesting papers were unfortunately omitted, owing to Mr. M. C. Richter's detention at Santa Barbara, whither he had gone to spend the holidays with relatives. On the whole, the several sessions were good; much was gained by those present.

Mr. Townsend, who was chosen president of the temporary organization of the Central Coast Counties Bee-Keepers' Society, is one of the alert apiarists of the State; he has a fine apiary at Soledad, and he says that his yields of honey far exceed those he obtained when he was in the lower counties of the State. W. H. H. Lawrence of Salinas, has been 5 years at the business, and withal he is well toward 65 years of age, he manages his 300 colonies as well as any old veteran, and he is well up in all modern methods; he is so much of a genius that he has introduced several labor-saving appliances of his own invention.

Another bright apiarist is C. W. Kerlin, who lives in the city, but has a large apiary well out in the hills.

Edward Smith of Hollister, San Benito County, and John Whitam, of King City, understand their business and are conducting successful apiaries. The latter had the distinction of being the only Californian present at the last meeting of the National Convention in Detroit.

Mr. B. Schnuchel has been fighting against odds at Peach Tree, to build up an apiary. His enemy is foul brood, and work as hard and intelligently as he can, he has not been able to increase the number of his colonies beyond 50. He is going to fight the enemy to the last ditch, and he hopes to win out; and he deserves to, for he is alert and progressive. It seems that the disease mentioned is much to be dreaded in Monterey County. Of this more later.

Mr. Benton is an admirable institute conductor, and his several talks on bees and bee-keeping were well received.

After the adjournment of the institute, a temporary organization of the bee-keepers in the Central Coast Counties was effected. The matter of permanent organization was passed, for the reason that the attendance was not entirely representative; it was hoped that a larger gathering should be on hand when permanent officers were elected. The officers chosen are as follows:

Vernon Townsend, president; K. F. Henneken, secretary; Edward Smith, J. Whitam, W. E. Stewart, P. Keating and W. A. Pryal, vice-presidents.

The Apiary Beautiful.

It is seldom we see a real pretty apiary; too often the bees are assigned to "any old place," as they are easily imposed upon when it comes to assigning them to living quarters. They will work well and diligently in any old barrel, box or hive, so long as it has no ill-smelling odors within and it appears suitable to them when hived. But to place a colony, whether in modern or antique hive, in an unsightly and otherwise disagreeable place, is an unpardonable oversight; it is a wrong to the bees, and to the good taste and character of the apiarist.

This fault is more noticeable in this country than it is in some of the European countries. In looking at the pictures of apiaries in British and Irish bee books and journals one is struck with the beauty of not only the surroundings but often at the hives and their arrangement as well. In all my travels up and down California I have not seen as many picturesque apiaries as I have fingers on one hand. Oftentimes an apiary of home-made and rather antiquated pattern hives will make a more pleasurable sight, as far as beauty is concerned, than will a like apiary of trim hives set up in apple-pie order. As an illustration of this, see the picture of a portion of an apiary on a certain hillside in Santa Clara county. While there is much room for improvement as to

A Pretty Little Apiary.

arrangement of the hives, etc., still, the apiarist will get just as much honey, it is true. And so in the case of the most inartistic apiary that ever was, unless some of the colonies are placed where the hives are too much shaded or too much exposed to cold winds.

An apiary located among pretty trees and tropical plants, as in the half-tone showing a banana in the center and an Australian acacia in the background, is a thing of beauty—and, perhaps, a joy forever for the bees and the artistic apiarist. It is possible for large apiaries to be so arranged in California, and the cost of securing the young plants would be nominal; just think of the after-pleasure of possessing such a sylvan retreat; it would be an ambrosial bower—a place fit for the gods and the bees.

But I must leave the subject for, as I stated on a former occasion, I'm not a poet and must not take such poetical flights.

A Portion of a Natural Apiary in Santa Clara Co., Cal.

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Bees Might Have Saved Father Adam.

Some little relatives who live across the bay paid us a visit the other day, and after a while were told to run about the place and gather all the fruit they could eat and carry home. In an hour or so I asked one of the young hopefuls if he was able to get plenty of nice ripe fruit. He replied that he did, but he was sure there was some nicer apricots than any he was able to get growing over the bee-hives, but he was afraid that the bees would sting him if he tried to get them; and probably they would if he molested the hives or remained any time among the colonies.

Just then it occurred to me that it was a pity for mankind that dear old Father Adam did not have some colonies of bees scattered in his orchard, in the Garden of Eden, especially under that historic apple (?) tree God forbade Eve & Co. to take any fruit from. It is a cinch, I warrant, that if the bees were nicely domiciled in old gums or even skeps, Mrs. Adam would never have got near enough to the tree for the serpent to tempt her with the forbidden fruit. Yea, the bees might have saved the human family from the state of sin, and lots of other hard things that have since hung over them. But, perhaps, none of the dear sisters would have become bee-keepers, for before Eve's vanity was her downfall, we read that not as much as a fig-leaf was worn by the sex that have since become the slaves of the dressmaker and the milliner. Just imagine Mother Eve out among the bees without as much as a veil upon her for ornament or shield against bee-stings! What a target her lovely self would have made for the honey-gatherers when they had a stinging fit on!

The Western Honey-Producers.

The Western Honey-Producers' convention at Sioux City, Iowa, January 20, 1909, was called to order by the president, Thomas Chantry, with about 75 present. After a short talk by Mr. Chantry on why the Association was organized, and the benefits given to members, Mr. R. A. Morgan, of South Dakota, gave a short talk on Caucasian bees. He spoke of them as being the best he had ever handled. They are good winterers and their honey has white cappings. They are easy to get into supers, queens are prolific, and the strain he handled would work on rainy days when Italians would not. They collected a large amount of propolis, which was deposited at the entrance and not on the sections, any worse than Italians.

Mr. Phinny of Iowa, endorsed Mr. Morgan's remarks. He reported 10 colonies of Caucasians averaging 3 full supers of honey during 1908, while his Italians did not average half that amount.

The question-box was then taken up and the following questions read and discussed:

"Was the discussion of pickled brood at the National convention (as per report) satisfactory?"

Mr. France answered that at one time 10 years ago, pickled brood was in 90 percent of the apiaries of Wisconsin; that there is little difference in the disease in the Northern and Southern States, but that it was caused by a shortage of unsealed honey in the hive just after fruit and dandelion bloom.

"How long can combs be used without making bees smaller, or injuring quality of extracted honey?"

Mr. France said he had some combs some 30 years old; that he and Mr. Ernest R. Root had been unable, after careful measurement, to see any difference in the size, but that it was poor policy to keep combs that long, as there was a decided difference in colonies if given new combs. Also, that by carefully observing bees and honey in the same yard and flow, that the best honey came from hives with new combs above and below. With old below and new above the quality was not as good, and with the old above and below too—poorer yet. Mr. Morgan thought 8 years about as long as combs could be used.

Mr. France gave an excellent talk on how to melt up old combs, and advised the use of a large amount of water.

There was then a recess of 10 minutes, during which time frame-wiring, putting in foundation, queen-cell dipping, and different appliances, were demonstrated. which attracted every one.

After recess Mr. Morgan read a copy of the proposed foul brood law for South Dakota. After some discussion and changes recess for supper was taken

B. E. Aldrich, of Iowa, read an interesting paper on tiering up, and late extracting, which brought forth a number of questions as to the value and merits of queen-excluders, and, with further talk on the foul brood law, the meeting adjourned until the next morning.

At the morning session Mr. Morgan read a very good paper on marketing honey. Mr. France then told something about the value of honey as a food, followed by Mr. F. W. Hall, of Iowa, on his method of comb-honey production.

In the afternoon the question-box was taken up again.

"What is the first thing any one should get who wants to start bee-keeping?"

Mr. McClintock and several others advised a good bee-book, while Mr. Morgan advised a smoker.

"How can I keep my Italians from clogging the brood-chamber with honey?"

Mr. Clarke, of Iowa, advised prolific queens, while Mr. Morgan advised extracting.

The final report of the committees on foul brood laws for South Dakota and Iowa, was received, and committees were appointed to bring them before the Legislature, as follows: Iowa—F. W. Hall, D. H. L'hommedieu, and W. H. Snyder, with Mr. France. South Dakota—R. C. Morgan, T. M. Goddard, H. Gensbeck, and Mr. France.

After passing resolutions thanking Sioux City for the use of so excellent a place of meeting, and also to endeavor to secure the National convention for 1909, the meeting adjourned.

B. F. Smith, Jr.

Randolph, Nebr.

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Selling Honey as a Food

BY C. P. DADANT.

May I be permitted to deviate from the common monthly discussion of American methods in apiculture, and talk a little about what some other countries are doing? This time it will be about the sale of honey and its spread among the people as an article of food of the very best kind. Our own National Association has given prizes for essays to be inserted in the newspapers concerning the value of honey as food. This is good. But an object lesson in the sale of honey is better, especially in cities.

The January number of the Swiss "Bulletin de la Société Romande D'Apiculture" contains an article from the Progrès Apicole on the honey-fair, at Lausanne. Some years ago I called the attention of bee-keepers to this Swiss method of advertising honey. It would appear to be successful, since it is continued from year to year. This "honey-fair" is also called "honey-market," and was held in a small Park, 170 feet wide by 500 feet in length, situated, in the center of the city; it was held simultaneously with a flower-fair, which takes place every year at the same time August 24th and 25th; under three rows of large basswood trees which shelter the exhibitors from the rays of the sun. At night, a line of Venetian or Chinese lanterns hung along the walk and among the tree gives a fairy appearance to this exhibit which is continued until eleven o'clock at night.

The honey exhibit is made under the management of the bee-keepers' association, and is kept by only three or four persons. It is very much as our State Fair exhibits, as far as I can see, with this difference, however, that it is independent of any fair except the flower-fair already mentioned. Honey and flowers go well together.

The honey-fair is advertised some time beforehand. Both comb and extracted honey are on sale, all put up in the most attractive manner, and the prices are established by the bee-keepers' association. The result is that many consumers, among all classes of society, have their attention drawn to this exhibit. It is the object of an evening walk, and the family go there as they might go to the show. The knowledge that the purity of the honey on exhibition is in a manner guaranteed by the association of bee-keepers, removes any possible distrust of its purity, and my readers surely know how easy it is to sell good honey when the people who buy it have no doubt about its purity.

As I understand it, the sales are not large at these honey-fairs—a few thousand pounds only. But they serve as an introduction between the consumer and the producer; they remove the barrier which has caused the consumer to ask himself whether he can depend upon what he buys as pure, simply because he usually gets it from a man, the retailer, who often does not himself know whence it came. If the retailer does not know the producer of the honey, and has any doubt about its purity, he is ill-fitted to recommend it. When the consumer and the producer meet in the way mentioned, there is a mutual confidence established, and a demand is created which will need but little urging to be continued indefinitely.

Nothing more than a mention is needed to remind our bee-keepers that it is the first sale to a family which is the most difficult. In thousands of cases, people pass by an opportunity to buy honey, without purchasing, because their attention is not especially drawn to this matter, as well as to the healthfulness of honey, which, by the way, no one thinks of doubting if only he is certain that it is pure honey he has the opportunity to secure.

May I say that, not only in honey sales, but in the advertising of many other products, we might profitably look to Europe? We now have what is called "street-fairs," organized in many small cities, with the view of drawing the farmers and pushing sales. The dry-goods stores, the clothing and shoe stores, the photographers, restaurants, etc., do a large business, because the country people are attracted from miles around to these popular gatherings. There they see exhibits of trained dogs, heavy-weight lifters, jugglers, and side-shows of all kinds, many of which are fakes.

These street fairs are copied from those of Europe, but in Europe they have at the same time a flower exhibit, a vegetable exhibit, a horse-fair, a cattle fair; not as in our county fairs, for exhibition of only the best of all breeds, with premiums, but to sell or buy whatever you may wish to acquire or get rid of in your line. Not only you may buy there, on a stated day, any kind of a horse, cow or pig, chickens or bees, eggs, butter, honey because you are sure to find the greatest possible selection, in high or low prices according to quality, but farm hands go to find employers, carrying a green twig in their hat as a token that they want employment. The country trades with the city, and the country people trade with each other. It is a general concourse where all come, either to make sales or spend money, and is very much more useful than our noisy modern American street-fair.

In this country the great distances originally between farms and cities compelled us to resort to advertising, but the present growing aggregation of people in small centers will sooner or later induce us to use these most convenient methods of finding sales for our products, where the middleman cannot do what is readily done between individuals. Neither is this injurious to the middleman, for when exchanges are thus begun, they are usually continued by the help of this same middleman, who can always be found at the center of business, when the farmer has returned to his daily occupations.

It is far better to create a market for our honey among our own people, through such local exhibits, than to crowd our produce on the big markets where it comes back to our dealers in poorer shape, with additional charges attached for the profit of the commission man, who must live as well as the producer. If a little more of this local market hunting were practised it would have a tendency to stiffen prices, for it is the large market that sets the pace, and too much is now sent to the large markets.

The race is to the swift. The man who uses his ingenuity to sell his crop will always distance the man who waits for the market to come to him. Let us not neglect any of the means that are in our reach for success.

Hamilton, Ill.

Punching End-Bars and Wiring Frames

BY G. C. GREINER.

As it is the general opinion of the more experienced portion of our bee-keeping fraternity, that the use of full sheets of comb foundation in the brood-chamber is the better way, we may as well accept their advice and follow suit, except in certain cases, when narrow starters would suit me better.

To make the use of full sheets practical, our main frames have to be wired, and this again makes the punching of end-bars compulsory. As far as I know, we have not yet an automatically working machine, that will punch end-bars and wire frames at wholesale rate, but both jobs have to be done one at a time, by hand. The various devices for punching, or rather drilling or boring, that have been described and represented by drawings in different bee-papers, are, in my opinion, a needless complication in their construction, and a waste of time in their operation. Any tool that will work on the boring plan must necessarily be more cumbersome and slower in its operation than the one that can do the work with a single push of the hand.

Unless we get a machine something like a corn-sheller, that will admit turning in end-bars by the crateful, and then crank them out corn-cob fashion, the handiest and speediest tool for punching is a common shoemaker's pegging awl, of rather smallish size.

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If one of that kind is not at hand, don't make the mistake and use a brad-awl, for it will not work as well as the former, on account of its spread-out edge. It cannot be withdrawn as readily as a straight, dagger-shaped, pointed tool, that has no enlargement of any kind from handle to point.

The objections of our friends, that a punched hole will close up in damp weather, do not corroborate my experience, at least not to that degree that it would in any way interfere with threading the wire. I have punched end-bars in the winter and not worked them up until swarming time, but I never had any trouble in that direction.

If we use a threading machine, it is necessary (and it would be better if we don't use one) that the end-bars are punched in a uniform way. To accomplish this, I have used for years a marker, which seemed to me the simplest and quickest way of doing the work. This is one of the end-bars punched according to the number and places of wires described, and finishing nails of the right size, driven into the holes, until their points project a very little on the other side. (See Fig. 1.)

Fig. 1.

By laying the marker on the end-bar even all around, a very slight pressure will leave the impression where every hole has to be punched.

A pattern made of a piece of tin the size of the end-bars, with holes punched in their proper places, can also be made to answer the purpose, but it will not give better satisfaction than either of the plans represented by the drawings.

It will be noticed that in using the marker, every end-bar has to be handled twice, first to mark and then to punch it. To simplify the matter, I have used lately, a punching block. (See Fig. 2.) It is made of a piece of hardwood board. Two end-bars are

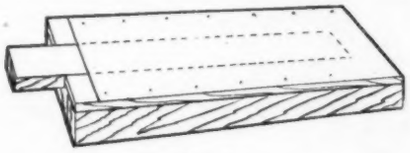

Fig. 2.

nailed on this, one on each side, and a little block on the end between the two, forming a groove the size of the end-bar. A piece of tin, with holes punched to correspond with the holes described in the end-bars, is nailed on top, and the tool is ready for action.

The end-bar is slipped endwise into the groove until it strikes the end-block, and the holes punched through the holes in the tin cover. This saves one handling of the end-bars, and may possibly do the work a little faster than the use of the marker, and punching afterwards.

The tin cover should not reach clear to the end of the block, but leave a little notch or entrance for the end of the bar to drop into. The drawing makes this plain. It is also an advantage to have the block fastened to the bench when in use.

In regard to the proper way of wiring frames, we do not all have the same views. I always claimed that wires should be drawn as tight as they would reasonably bear, while others, and experienced men, too, claim that tight wires have a tendency to cause foundation to bulge or buckle. I have never found it so, when using medium brood-foundation (and I would use no other), although I have always wired my frames as mentioned. The little experience I have had with light brood-foundation convinced me conclusively that it is not in the wiring that makes the difference, but that the light kind of foundation has that unpleasant notion with any wire, loose or tight. Even when no wires are used, and before it is ever put in the frames, it is inclined to get out of shape. But be this as it may, if I am all wrong on this question, I am sure of one thing: The embedding of a straight, tight wire can be done much faster than the following up of a crooked, loose one. The embedder is not so liable to leave the former as the latter.

La Salle, N. Y.

Difference in Races of Bees

BY G. M. DOOLITTLE.

A correspondent writes thus: "I wonder if Mr. Doolittle would tell us in the columns of the American Bee Journal something about the different races of bees, which he considers the best, and about their working qualities. I think this would be interesting to the majority of the readers, as I know it would be to me."

I realize that the older bee-keepers are quite apt to forget how eager they were in the beginning to know all about things which have long ago become established facts with them, and for this reason often "soar so high" that those just entering the ranks feel that they are left out in the cold because but very little of the "first principles" of things pertaining to bee-culture finds its way into our yearly periodicals of the present time.

My first experience was with the German, or what is more commonly known as the black bee, and where or when I could find anything telling about the peculiarities of these bees, I was all "eyes and ears" to learn whatever new I could of them. When the Italian bees were first introduced into this country, they were compared with the black bee, and in this comparison much was brought out that had never seen the "light of day" before, I finding out that the knowledge of these which I supposed was very nearly perfect, was, in fact, only in its infancy. The black bees had been described as very industrious, quite gentle to handle, good comb-builders, hardy to stand the winters and moderate swarmers, when their early and prolific brood-rearing was taken into consideration. And before the advent of the Italians we thought that came very near perfection. But the Italians proved that the claim of industriousness for these black bees was only comparative, for the Italians would toil all day long with only "pennies" in sight, while the blacks would not work unless there were dollars halves, quarters, or at least dimes lying around to be gathered. To illustrate this:

When I had my first Italians, I came through with 3 colonies in the spring, with something over 20 colonies of black bees. I tapped a few maple trees, and made the sap about twice as sweet as it came from the buckets by stirring sugar in it. This sweetened water was placed in outdoor feeders, and to start the bees to work, somewhat thinned honey was used. I soon had bees swarming over the feed, and they came in about the proportion of colonies I had, or about one Italian bee to seven black bees. As soon as the thinned honey was gone the black bees began to diminish, while the Italians increased, when, two hours from the time of starting there was not a black bee around the feed, but the Italians kept on working till the feeders were licked up clean.

This experiment proved it was true that the Italians would store enough for wintering, and often give a small surplus in years so poor that the black bees had to be fed to keep them from starving during the winter months. In a really good year, when nectar was abundant, there was little difference in favor of either along this line of gathering sweets.

When it came to gentleness, there was a great difference in regard to their manipulation while in their hives, the Italians keeping steadily along with their work as a rule, while the black bees would run wildly about, take wing and sting, if as little smoke was used as with the Italians; while if smoke enough to subdue them was used they would often stampede off their combs and clear out of the hive. If you held a comb up to the sun or light for a prolonged examination, tht bees would collect in little knots at the lower corners of the frame, and drop off on the ground elsewhere, thus endangering the life of the queen, should she happen to be on the frame of comb you were inspecting. This almost prohibited the finding of black queens, where the necessary amount of smoke was used to quiet (?) the bees, while without such an amount of smoke the "hunter" was almost sure to get severely punished with stings.

Now while this was true as regards handling combs and hives, yet, from years of experience, I found that with swarms hanging out on limbs and elsewhere, after clustering during swarming time, the blacks would resent being interfered with for hiving, far less than did the Italians; and as about all the handling of bees which was done before the advent of the Italians was that of hiving or handling clustered swarms, by the great mass of those having bees, this gave rise to the idea that the blacks were really a gentle race of bees.

As to comb-building qualities, there is probably no race of bees known which will give more or whiter combs than the blacks when there is a "down pour" of nectar, lasting for two or three weeks, but with a poor or intermittent flow of nectar, the Italians will go steadily on

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with comb-building, just as if they were sure they would gather enough honey to fill it all.

The sections I used in those days of black bees were 5¼ inches deep, and with an intermittent flow here would be an active starting of comb-building, and a stopping of the same as many as from 3 to 5 times in building a comb down to the bottom of the section. And, as every period of activity caused some of the cells to be lengthened, while at times of stopping others would be capped over much shorter, this gave the surface of the comb a "washboardy" appearance which was quite detrimental when it came to marketing the crop. At the same time the blacks were thus building combs and finishing them in the sections in this way, the Italians would build their section combs right straight down to the bottom, and cap them over as even and nicely as in one of the best of seasons. But in a really good season, there the blacks would show their superiority in this matter, for their section combs would be as straight and smooth as a board, while the cappings would stand out away from the honey, so that the face sides of these combs would be of snowy whiteness, while the darker Italians would use so little wax in capping, and plaster this right down on the honey, apparently to save wax and space, that the face sides of the combs in section honey built by them would have a watery appearance, this making it unattractive to the purchaser through its appearing like another and a darker grade of honey. However, with the golden Italians we have something which cap their honey very nearly as white as the blacks, while they have all of the good qualities of their darker sisters.

As to standing our winters, nothing need be said for either race south of 40 to 41 degrees north latitude, as any race of bees should stand the winters that far south; and in the colder parts of the United States and in southern Canada there need be little trouble where cellar-wintering is practiced. When it comes to a confinement of 3 or 4 months with the mercury down from the freezing point to 30 to 50 degrees below zero, with the bees wintering "out in the open," there is little doubt but what the black bees can exceed in hardiness their more yellow sisters. However, here in central New York, they stand our winters remarkably well, where any one is obliged to winter bees out on the summer stand. A little protection by way of double walled or chaff hives seems to carry them through equally well with the blacks.

As to the swarming of the two races, I see very little difference, though I think the black bees are much more prone to cast many after-swarms. But as nearly, if not quite all of our practical apiarists know how to control after-swarming, this counts for very little.

The main point in favor of the Italian bees, as I see it, is their pliability under the hand of good management. Of course, all their other good qualities are extremely valuable, but all of these must take a back seat for the fact that they are so pliable in the hands of the apiarist, so that the maximum number of bees can be brought on the stage of action just in the right time for the honey harvest, be that for clover, basswood, buckwheat, or fall flowers; or at the right time to secure the greatest amount of nectar from any given flow that may be one of the regular supplies for our surplus, no matter what its time of blooming may be.

I have said nothing about the Cyprians, Carnolians, Holy Lands or Syrians, Caucasians, etc., because I consider none of these, after giving all a fair trial, little if any better than the blacks, taking all things into consideration.

Borodino, N. Y.

No. 3.—Bee-Keeping in Colorado

BY R. C. AIKIN.

Should late January have a warm spell of 10 days to two weeks so that bees will fly freely and clean house, most colonies, and especially strong ones, will begin breeding. I might say that such a warm spell any time between Jan. 10 to March 1 will start breeding whenever it comes. And I consider it fortunate that we have such a spell early enough that some bees will be hatching by March 1, and surely by March 15. March and April are the trying months, and it is a very important thing to have young bees maturing, else the colony usually becomes so few in numbers that they cannot keep up breeding heat, and so succumb. Hatching bees by the last of February or early March is usually equivalent to safe wintering.

Spring management depends upon locality and general conditions; what to do will depend upon the strength of the colony and the early flora, together with temperature. Much of Colorado has foul brood to contend with, and spring is the time it does most of its spreading, by the robbing or carrying of stores from the diseased ones that have perished in winter or are unable to mature enough brood to keep up the death rate, and so become a prey to robbers. Late winter and early spring should be a time of vigilance in foul-broody locations; all dead or very weak colonies should be looked after.

SOME FACTS ABOUT FOUL BROOD NOT GENERALLY KNOWN.

I have just read in the Canadian Bee Journal of some ideas advanced on this subject at the Detroit convention, and among others Mr. McEvoy's reply to the query so often raised as to whether it is not best to boil or otherwise disinfect the hives. He convulsed the audience by asking with fine sarcasm if it would not also be wise to boil the bees! Contagion is not carried except in the honey where the bees are alone considered in its transmission, and this occurs only by carrying stores from infected colonies, *and feeding those stores to the brood where this honey is used.* Bees have been known to rob out foul colonies in early winter, when there was no breeding going on, and since the honey so gathered was used for daily rations, and all consumed before breeding began, no disease resulted to colonies getting the infected honey. It appears, then, that the principal thing to do to prevent its spread is to prevent the robbing or carrying of disease-infected stores and feeding to brood.

Regarding the use of hives and frames, I use them right along without disinfecting them, even going so far as to leave starters of the old comb in the frames, *provided there is neither any honey nor dead matter from larvae in said starter*; and also use dry clean combs from foul colonies. Neither do I burn or disinfect the hive itself, other than to scrape off propolis and all comb, and sometimes set the hive up facing the sun so it may get a good sun-scorching. With bottom-boards I am a little more careful, particularly if the colony which was over it was exceedingly foul; if the bottoms are not needed for a time, I lay them out face up and let the sun scorch them until I again visit the yard. Very often I shake colonies right back into their old hive, giving a set of new frames with starters. But I want to warn every one that once a colony is infected, even though it be with but one or two cells at the start, that colony will sooner or later succumb to the disease though it may be from 18 months to 3 years in accomplishing its ruin. I do not believe there is one colony in ten thousand that ever survives or works a self cure. So in late winter and early spring and summer, is the time of all times to spread foul brood, and this should be watched more closely then.

If colonies have plenty of stores and a queen, there can be very little done to help them until the colony has begun to get enough young bees hatching, so that more brood could be cared for. When this time has arrived, no matter what the date be, if there is nectar and pollen being carried in, there is still practically nothing to do; but if no stores or supplies are being gathered to stimulate the colony to activity and strong breeding, there is something that *can be of much help.* You can break cappings on store combs to make the workers load sacks in picking up and replacing the stores that will leak; this results in better fed queens and nurses, and more brood. The activity causes more heat, which also helps. The same thing results if the brood-chamber be lifted and turned end for end on the bottom, bringing the honey-laden ends of the combs next the entrance where the bees will uncap and carry it back. Or one or two combs may be reversed at a time and others later. These manipulations accomplish little except when field supplies are not being gathered, except that to reverse the hive or combs, putting the brood to the back causes the filling the combs from end to end, and will result in a slight increase of breeding.

LARGE HIVES BY DOUBLE STORYING.

Many Colorado localities need large hives for the best success; in fact, I am about convinced that almost any country would be better with hives larger than the 8-frame Langstroth size. I notice that the Texans are using large hives, as well as many others all over the country, and quite a number of our Colorado apiarists are coming to use a 2-story 8-frame hive. I think 12 frames, probably, would be sufficient, but a 12-frame body

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in one is too big and too wide, and a 6 would be too narrow, and the 8 being standard we may as well use 2 of this size in a 2-story hive. When the colony has built up and the flow is on, one may be removed and the super put on, using the removed one for a new colony or for strengthening weak ones, or for extracting.

I discovered several years ago that the double-story hive was excellent for wintering and springing, and was also fine for dividing and other manipulations, giving a control and satisfaction not to be obtained in single-story hives of any number of frames. The testimony of other users puts the double-story hive far in the lead.

For those producing extracted honey, I am sure the 2-story hive is most excellent. The combs containing the most brood can be put in one body, and those with least brood and stores in the other, the latter put at the bottom, on this an excluder, then a set of dry combs, and on top of all the one heavy in brood and stores. For comb honey the same arrangement may be made, except that the chamber put above the dry extracting combs should be put on a new stand, if the queen be left in the old location on the combs containing little brood and honey. But a plan that is more certain to control swarming, and puts the matter under absolute control, and in such condition that one may know just what will result is the following:

From the two sets of brood-combs, mass into one the combs containing most brood and honey, and put this on the old stand with super on it, leaving them queenless; the other body with the queen being set in a new location. This puts the old location queenless, but with its hive well stocked with brood, and the fielders and most of the forces of all ages there, they will build cells and are safe from swarming until the cells mature; these cells should all be cut out the 9th or 10th day, except one of the best.

Another plan that works well is to take away all the brood from the old stand except just one comb, leaving this in one of the original chambers which the colony has been occupying, putting it in the center and filling out with starters; and on this put the super, and leave here all the bees that can be spared from the other combs, making a new colony with the queen and her brood on a new stand. You now have a queenless colony with but one comb of brood on the old stand with starters only in the other frames. With full sheets of foundation (or the same and one or more bait-combs) in the super, they will build nicely in it. They will also build some fine cells on that one comb, all but one of which should be removed 9 or 10 days later. They will also build some drone-comb, but not as much as most people think; this can be removed either about the time the young queen begins laying or the next spring; the young queen will avoid laying in the drone-comb that season, except a very little amount. This plan gives one perfect control of swarming, and will give good results in honey if intelligently handled. And what is more, and a very important matter in most Colorado locations, that old queen put on the new stand and, robbed of her fielders, will get a great mass of brood in old combs and be soon a tremendous colony, and give the best of super work in the later or sweet clover flow, and usually may be trusted for very little swarming.

During the spring when manipulating, as fast as the queens are found they should be clipped; for this purpose I carry a pair of little scissors in my vest pocket. A queen found clipped, if the clipping was done the previous year, is marked on the hive record "O. Q."; but if not clipped I clip her and mark record "clpd.," with date.

The next article will detail more on some of these points.

Loveland, Colo.

Should Bee-Keepers Specialize?

BY LEO E. GATELEY.

Knowing that in all lines of endeavor the highest success has been reached only through a close concentration of purpose, and because, personally, this has been found best policy, I have always, at the risk of being deemed an inconsiderate enthusiast, urgently recommended specialty for all so situated as to be able to avail themselves of the advantages such a procedure affords.

Not unlike, perhaps, the majority of those now entering the business, I was at the time when my interest in bees became aroused, engaged in general farming. Only after the bees began making a more satisfactory showirg than the other branches of my work, did the production of honey become my specialty. Considering this fact, it is hard for me to believe that I am making any monumental mistake in becoming optimistic regarding the future of apiculture as a vocation.

Though this is hardly a suitable occupation for those seeking unnaturally large and immediate financial profits, still, if intelligently followed, it will in many localities be found as remunerative as any business of similar nature. It requires, however, a steady hand and a complete knowledge of every feature of the work. Being qualified for the business, if the locality proves good, the remuneration is sure after a sufficient number of colonies have been acquired.

The number of colonies necessary to insure the bee-keeper a living income, depends upon the man, upon the methods employed, and upon the location. Though during the past season the man having 50 colonies in his back yard has realized as much as the average farmer, such years are the exception, and on account of off years, it would be safer to double that number before depending upon them wholly. Again, these figures relate to the comb-honey producers. Run for extracted, something above 100 colonies might possibly be needed.

While there is small question but that a few colonies kept as a side line usually pay well for the small amount of labor their care demands, the profits from such apiaries are extremely small, compared to what the same bees would do in the hands of an expert, and under intensive methods. In a small apiary there is never the chance to put in use many of the economic practices the extensive bee-keeper generally finds lying close at hand. Certain it is that the need for specialization has been discovered by a few, and its efficiency demonstrated.

APIARY OF J. E. KLEIN, INDIANA, PA.

In a recent issue of one of the bee-papers, the editor speaks highly of poultry-keeping being admirably adapted as a side-issue for honey-producers. Unless raising fancy stock, the annual profit from a hen is usually estimated at about $1.00. For comparison, let us say that the labor required to care for a hen is equal to that for a colony of bees, although, in reality, it is about six times as great. At this rate, in our locality, a colony of bees kept in a log-gum, will return a profit five times that of the hen, or if in a modern hive with skillful management, the bees will hold their own if a crop is secured once in 20 years.

Few there are who have urged specialization but have pointed out the fact that

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a suitable location is absolutely necessary. For this reason, beginners should never start with more than a few colonies, and accurately ascertain the resources of their locality before investing largely. Even with poor management, fair returns may occasionally be had in a first-rate locality, but where there is no pasturage the highest knowledge comes to naught. Seldom does our locality furnish the enormous yields sometimes produced in a few highly favored spots, but its stability, and an immunity from bee-diseases, make it fairly suitable for specialization. During the number of years in which I have kept bees in this State a total failure of the nectar supply has been unknown.

Not all localities are adapted to exclusive bee-keeping, and where this applies, great results should never be anticipated from a small apiary kept as a side-issue; for where good returns can be had, specializations well generally be found desirable.

Complaint is frequently made that through encouraging beginners, danger may be found in some inexperienced person jumping to a hasty and erroneous conclusion that the bee-business is a broad avenue to easy fortune. No advocate of specialty has, however, to my knowledge, even remotely suggested wisdom in such policy. For the experienced bee-keeper, properly situated, the advice so often given to eliminate all entangling side-issues, is sound logic.

Without thorough preparation united with some practical experience, the one who invests heavily in bees, expecting to make of them a sole dependence, is foredoomed to almost certain disapointment. Moreover, his experience counts for little if it has been with obsolete methods.

The present-day bee-keeper has greater possibilities of living a happy and prosperous life than he ever had before. Still there remains one thing that is absolutely essential to real success, and that is some knowledge of the modern conditions that affect apiculture.

Ft. Smith, Ark.

Can Working Energy Be Stimulated in Bees By Shaking?

BY GEO. W. WILLIAMS.

It is universally recognized that the novice who is full and running over with enthusiasm, who is constantly fussing with his bees, and tearing them up, pulling them to pieces, etc., usually gets a much better yield of honey than the person does who has lost his enthusiasm, or who has such a number of colonies that he can not examine each one frequently. This is usually attributed to insufficient pasturage for the increased number of colonies.

But how are we going to account for the large honey-yields "cranks" like Dr. Miller, who is so enthusiastic that he gets up before daylight so he can pull all his colonies to pieces every few days, and can't help "digging into" each colony at least once a week? Or Mr. Alexander, who kept 750 colonies in one yard, and in the season kept the extractor going almost constantly, and thereby "shook" his bees thoroughly every few days? These men get yields, and big ones, and do it uniformly, with big apiaries, while their neighbors who keep bees in the same field, over the fence, maybe, who let their bees alone, do not get anywhere near the same yields.

I hear some one say that the reason for these large yields is the intelligent manipulations, such as spreading brood, destroying queen-cells, etc., and others that suggest themselves. Now, I do not minimize the value of these and many other necessary manipulations, but I wish to call attention to an important fact, and one that has never been discussed in the journals until I called attention to it in the December Bee-Keepers' Review, viz.:

The increased energy noticed after these manipulations, or in fact, after *any* manipulation, is to a certain extent induced by the physical excitation incident to the "shaking" the bees get during the process, rather than by any other cause. That this is true I have demonstrated to my own satisfaction, and I feel that it will be to the financial advantage of every bee-keeper to investigate the matter the coming season. As I stated in the Review, I increased my profits on the yard experimented on, 37½ percent over similar yards situated differently. In this yard I practised a system of "shaking" to stimulate them into activity whenever they failed to come up to the required standard. This is a larger percent than I expect in every case, but the fact remains that it *did* do it in one instance, and I feel sure that it will in a degree increase the yield in any case.

There are periods in a honey-flow, especially at the beginning, when every colony, provided it be strong enough, is full of intense energy. Some few colonies retain this desirable condition throughout the season, and these are the colonies that give us the big results we hear about. But in most colonies, this abates to a marked degree after a while, and the bees loaf, swarm, or otherwise fail to store the amount of honey they should.

Very few colonies, unless they get the swarming fever, allow their energy to abate very much while the yield is constantly *increasing*, but most colonies will show a marked decline after a few days of a stationary or a declining flow. To compel each colony to retain this intense initial energy to the very end of the flow has been the dream of every thoughtful bee-keeper, and, to accomplish this, many systems have been planned and many styles of hives devised.

Swarming used to be the greatest obstacle in the way of success, but "shook" swarming has, in a measure, removed the worst features of it, and incidentally suggested to me the thought of further using the "shaking" process to solve some of the other problems we have to meet.

And why not? A "shook" swarm goes to work just as energetically as a natural swarm, and, as far as we can discover, has incidentally the same desirable psychological characteristics. Anything that you can do with a natural swarm can be done with a "shook" swarm. The application is obvious when we remember that these desirable characteristics can be induced in *any* normal colony at *any* time, regardless of the presence or absence of the natural swarming desire. It naturally follows that, when for any reason whatever, we find a colony lacking energy, or *any* of the desirable psychological conditions, and we desire it to have them, we can induce these conditions, and retain them at will by using the shaking process when needed.

None of the authors in the past have given this idea any recognition as an aid in getting honey. In fact, it has never been mentioned, to my knowledge, in that connection.

In these days of low prices for honey, we must not overlook any possible means to curtail our manipulations and consequent expenses. In my experiments the past summer, I am led to believe that we can eliminate many manipulations that we have been taught are necessary, and substitute a "shaking" more or less thorough, and simplify and shorten our existing methods materially.

A test of this idea entails no expense, and all one has to do is, when going among the bees, when a colony is found that does not come up to the standard of a newly hived swarm, simply "shake" it, and results will surely follow.

Redkey, Ind.

Report for Season of 1908

BY WM. STOLLEY.

While the spring of 1907 was quite unfavorable for bees with us, and the crop the following fall a very good one, the spring of 1908 was to all appearance very favorable, and the bees built up rapidly, but the season the past fall was anything but favorable, and resulted in about one-fourth an average crop.

March and April, 1908, were warm, and we had but ½-inch of rain early in March.

May brought us injuring frost, hail, and, in all, fully 7½ inches of rain.

June was rather cold, and we had 10¼ inches rain.

July acted a little more decently, was more normal, and brought but 5 inches rain.

August was rather cool and wet again, and in this month we had 8¾ inches rain.

September gave us ⅝-inch rain, and October 3 inches, and on October 10 to 11 we had the first light frost.

The result of the season's work with the bees was as follows:

From 30 colonies run for extracted honey, 830 pounds; from 4 colonies run for comb honey, 20 sections—a total of 850 pounds. I had to feed 130 pounds of honey and 120 pounds of cane sugar, so as to give my bees from 30 to 40 pounds winter stores, per colony, for this winter.

October 17, I winter-packed my bees in the open shed. I had 6 swarms of my own bees, and 6 stray swarms from somewhere, which entered the decoy hives on top of my 90-foot-long bee-shed. The last of these stray swarms came on October 15. It was a *large* swarm,

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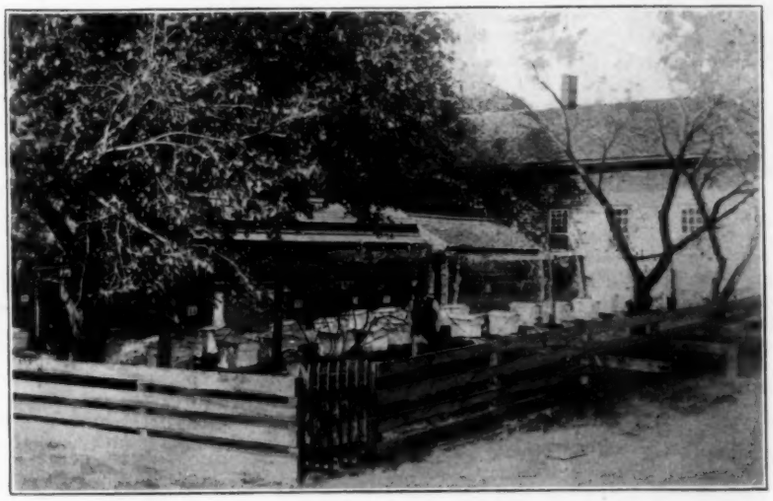
strung out in a long string, and it took all of 15 minutes until the tail-end had arrived at the decoy hive. This swarm proved to be without a queen.

My bees had good flights on 7 days in November and 8 days in December. On December 6 and 7 we had zero weather.

On December 29 I renewed the winter-packing over the bees in 25 hives. That is to say, I gave them new, heavy quilts, and had the chaff packing out in the sun, although there was but very little dampness to be noticed. I have now my exact number of colonies wintering that I had when spring opened; i. e., 30 colonies to be run for extracted, and 4 colonies for comb honey, in the coming season of 1909.

Grand Island, Nebr.



APIARY OF JACOB WAGNER, E. AMANA, IOWA.

A Successful Iowa Apiary

BY JACOB WAGNER.

I am sending you two photographs that were taken for me some time ago. One shows my apiary where I have been keeping my bees over 25 years. When I first started I kept them inside the building you see in the picture in the rear, but now have them outside, and use one part of the building to store away hives and other utensils when not needed. The other part I use to extract honey and do other work in connection. The larger building to the right is my shop, where 3 to 4 men are working on benches doing cabinet and carpenter work.

I have found it more practical to keep bees outdoors than inside. I have them under an arbor of grapevines, which I consider an ideal place for them. You can notice the sidewalk and street just outside the fence. This is one of the most used thoroughfares at the place, and in all these years, nobobdy has ever been bothered by my Italians, which fact surely shows that they are a rather good-natured crowd. Some seasons I have 50 to 60 colonies on the place, but this season had only 15 colonies, spring count, which increased to 26 and produced over 3000 pounds of extracted honey, and 320 pounds in one-pound sections, so I have reason to be well satisfied.

The other photograph shows a swarm of bees that I found in the limbs of a sour-apple tree, 8 to 10 feet above the ground. They were hybrids and very gentle, and did not bother me in the least while climbing to my seat where the limbs formed a fork just about 4 feet from the cluster, with my face as close as 2 feet to them, and my hand still closer. Through failure to find a better place, and for some other reason, they selected this rather odd place for their permanent home. They had built 6 combs, 10 inches wide, and 14 to 16 inches long, which contained some brood and a little honey at the time I discovered them, which was in the latter part of September. I suppose when they started to work the limbs and twigs were very thick with leaves, thus forming a covering or natural roof, that must have looked inviting to them. Well, I thought it an uncommon sight, anyway, so I decided right there to have it photographed, hoping it might find a corner in the American Bee Journal in the interest of its readers.

East Amana, Iowa, Nov. 3.

MR. WAGNER AND HIS SOUR-APPLE TREE SWARM.

"Thick Extracting Combs"

BY E. D. TOWNSEND.

On page 181 of the American Bee Journal for June, 1908, under the above heading, is an extract from the British Bee Journal, referring to the spacing of extracting combs 1¾ inches from center to center, Mr. Richard M. Lamb saying "he bought 100 wide frames, and for a few seasons compared the work done in them with that done in the ordinary frame with the 1½-inch spacing, and found the former sadly disappointing."

While there is usually a wrong as well as a right way of doing things, I cannot see from the quotation above referred to, where Mr. Lamb made his failure. It will be noticed that 1½-inch spacing from center to center of his extracting combs is a success, 1¾-inch spacing a failure as to quantity and quality of honey produced—only a fourth of an inch difference in spacing, between success and failure.

It is admitable that 1½ inches, from center to center, is nature's width of spacing; that is, if a swarm is hived in a box, without any guide in the shape of a starter, their worker-comb will be built about 1½ inches from center to center, and this width spacing will hold good in the surplus receptacle when no starters are provided.

Since 1⅜-inch spacing of the brood-frames has been so universally adopted, some may have gotten it into their

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heads that that is nature's width of spacing, and that 1¾-inch spacing is ⅜-inch wider than nature's way. This is a mistake. This 1⅜-inch spacing is made possible by the use of very straight combs, the result of the use of foundation, or the intervention of man. Where combs are built almost as even and true as a plained board it was found possible with these true combs to crowd nature's spacing 1-16 inch, thus making the spacing only 1⅜ inches from center to center of the brood-combs.

The upper stories in which we produce our extracted honey, are 14¼ inches wide, inside, or what is known as the 10-frame width. Eight frames in these stories is a little less than 1¾-inch spacing from center to center, 9 frames in these stories a little less than 1 9-16-inches spacing, allowing for one more bee-space than frames in each story.

Mr. Lamb does not quite say that the colony provided with 9 combs will store a half more surplus extracted honey, than one with 8 combs in their extracting story, but he *does* say that the colony with 1½-inch spacing of combs in their upper stories will store a *half more* honey than one with 1¾-inch or 2-inch spacing. As I know of no one using a 2-inch spacing, and likely there are but few who space their combs for extracting as close as 1⅜ inches, I will consider only the 1½ and 1¾ spacing, in what I have to say on this subject.

We have (self and sons) at the different yards 1,000 upper stories. When we commenced buying frames for these stories, we bought what is known as the staple-spaced frame, but used only end staples. These frames were built of ⅞-inch wide material for the bottom and ends; the top-bar was 1 1-16-inches wide. When one of the projections at the end of the top-bar would split off, as they occasionally do, on being removed to be replaced with a new top-bar, we were surprised to find how thick the comb was next to the top-bar.

In uncapping to extract, the cappings are cut down even with the top and bottom bars of the frame, that is, the knife is held up against the frame as close as it is practical; the cutting over the 1 1-16-inch wide top-bar, would leave the comb more than 1⅛ inches thick at the top, and many of them would be 1 3-16 inches at the top, gradually tapering down to about an inch thick at the bottom of the comb.

We had in previous seasons produced a large amount of comb honey, and had used the part-full sections of the previous season, a few in each super—"bait-sections" as they are called. Many of the combs in these sections were built out to their full thickness, only needing capping to be ready for the market. As the season closed, and left them part capped over, they were extracted and used for bait-sections, as I have explained before. These bait-sections were drawn out into *thick* combs *when given to the bees*, and never produced honey equal to those drawn out from foundation, and filled with honey as they were drawn out. The upper half, at least, of the extracting combs heretofore mentioned, where the uncapping knife was run over the 1 1-16-inch wide top-bar of the frame, were identical with the bait-sections, mentioned above, i. e., too thick to produce a good article of honey, either comb or extracted.

Can it be that Mr. Lamb made the mistake of using wide spacing, and *did not uncap deep?* The quality of the honey he reports, looks that way.

The remedy is simple: it is not wide or narrow spacing, that determines the quality of the honey produced; it is the *thickness* of the empty extracting combs, *when given to the bees*, that has much to do with the quality of the honey produced. Space your extracting combs to suit your own fancy, then see to it that they are not to exceed *one inch thick* when given to the bees to be filled; and other conditions being favorable, the quality of one's honey will be all right.

After knowing this, is it any wonder that I now build all our extracting frames only ⅞ of an inch thick: so by holding the uncapping knife reasonably close to the frame when uncapping, the comb is cut down to about an inch thick. At the time of adopting the 1 1-16-inch wide top-bar for our extracting frames, we spaced our combs the same as we had been accustomed to do for the previous 20 years, that is, a little more than 1½ inches from center to center, or 9 combs in the 10-frame body. With this spacing we had trouble in uncapping a *thin* comb, in a *wide* frame; that is, if we run the uncapping knife as near the top and bottom bar of the frame as we could conveniently in uncapping, much of the surface would not be uncapped, necessitating going over the surface of the comb a second time to pick up that portion not uncapped the first time over. This second going over the comb to finish the job, would take more time than it would take to have cut the whole side of the capping off in one slice, providing the comb had been bulged out thick, instead of the lean comb it was. To remedy this defect in the wide top frame, 8 combs were used instead of 9 as before, in the 10-frame body. This 1¾-inch spacing gave the bees a chance to draw out the combs so fat and thick that there was no trouble in uncapping. About one-half of our stories are worked this way at the present time; but a special effort is made to uncap these combs as near the inch mark in thickness as is possible.

In getting our foundation drawn out for extracting combs, 9 frames are used in our 10-frame upper stories. This is nature's width of spacing, and we think a little better work is done with this spacing than with 1¾ inches; that is, the surface of the combs when finished is much more even with narrow, than with wide spacing. It sometimes happens that combs are built up between the sheets of foundation from the hive below, when spaced 1¾ inches apart. There is nothing gained by using 10 frames or 1⅜-inch spacing in getting foundation drawn out for extracting combs, as the bees work the 1½-inch spacing just as well, and when done the combs are finished, or fat enough so the uncapping knife will do the work, provided the frame that contains the comb is but ⅞-inch wide, so the comb can be cut down to an inch (or there-about) thick, as explained above.

A year ago a few of these ⅞-inch wide frames of comb were used 9 to the 10-frame story: they uncap just as well as when 8 of the 1 1-16-inch wide top-bar frame is used, in the same story; or in other words one is about as fat as the other, so in either case the whole side of the comb can be uncapped with one stroke of the knife. Last summer about 100 stories were used with 9 combs, as above, with perfect satisfaction, and the indications are now that all of our ⅞-inch wide frames would be worked 9 to the story in the future. It is just as likely that our 1 1-16-inch wide top-bar frames would be worked as usual, 8 to the story; for, as I have said before, it is a tedious job to uncap a lean comb, between *wide* frame bars.

Those, like Mr. Lamb, who think it wasteful to uncap deep, should by all means space 1½ inches from center to center, for by so doing the combs will be the desirable thickness when through uncapping; and not be so thick when given back to the bees that nothing but inferior extracted honey will be secured.

Before going further I want to emphasize the fact that if one adopts this wide spacing of his extracting combs, it is absolutely necessary that he follow the system clear through, that is, cut the combs down to about an inch thick when uncapping; by so doing just as good honey will be produced as with any width of spacing; but, on the other hand, if the combs are left thick, only just enough cappings cut off barely to uncap the honey, the results will not be satisfactory. Be sure to adopt the whole system, or narrow spacing will give better results.

Mr. Lamb says it is wasteful to uncap deep. If this is the case, it seems as though we should have been the first to have found it out, working the 1½-inch spacing of our extracting combs as we have for more than a score of years, then gradually changing to the 1¾-inch spacing until hundreds of stories were worked with this spacing for the last 10 years; then 2 years with both 1½ and 1¾ spacing in the same yard: had there been any difference in amount of surplus honey secured, it seems to me that we would have been in position to have known of this difference, which I assure you we have not seen.

I have no "ax to grind" in this controversy, only a desire to produce the most extracted honey of a superior quality at a minimum of cost. If one feels that it is wasteful to uncap deep, he will be quite likely to run his uncapping knife shallow, and by so doing leaving his combs too thick to be returned to the bees for best results. To those feeling that way, unless they see the error of their way and uncap properly, I would recommend 1½-inch spacing, for quality's sake.

I think all will agree that combs with narrow spacing will be capped over just a little more expeditiously than with

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wide spacing, but we here in America have lots of time after the close of the season for the bees to finish up the curing and capping of their honey, before it is necessary to extract.

No difference is noticed whether 8, 9 or 10 frames are used in the 10-frame story, as to swarming, the bees entering the stories readily.

In conclusion I would say that if the frame the extracting comb is built in is 7/8-inch wide, no trouble will be experienced in uncapping the comb in one full sheet; or, in other words, if frames are spaced 1½ inches from center to center, the combs will be bulged enough so there will be no trouble in cutting off the entire capping from one side of the comb at one stroke of the knife. Ten combs in this space are too lean to uncap to a good advantage, even with 7/8-inch wide frames. With a frame 7/8 wide for our extracting combs, either 1½ or 1¾ spacing can be used to good advantage; with 1 1-16-inch wide top-bar extracting frame, 1¾-inch spacing is closest that will uncap to good advantage.

Remus, Mich.

Pollen Starvation Cause of Foul Brood

BY W. H. MESSENGER.

The June American Bee-Keeper says: "Gleanings has repeatedly declined to give space to Mr. Huxley's new ideas, apparently because they are so radically at variance with accepted teachings." In the same issue is this: "Dr. White of the United States Bureau of Entomology, Washington, for the same reason, declines to conduct experiments along lines suggested by Mr. Huxley, although he admits that the latter's theories may be correct, and that if they may be proven so it will be quite an advance in scientific research."

Mr. Huxley's letter is on the origin of foul brood, and puts it down to insufficient pollen (pollen starvation) from the third or fourth day of the larva. Not such a terrible dogma surely for people to fight shy of, who earnestly wish to get the mastery of foul brood.

Now I have all the text-books published in this country, subscribe for all its journals, and send to Washington for every bulletin published to do with bees and kindred subjects, and I learn the same from all. They teach you how to distinguish it when you get it, and also how to cure it. (And by the way, a person that has learned by the study of chemistry or photography what a *clean* vessel is, and how to obtain it, will stand more show of making a thorough cure without destroying property than one who has not learned what "clean" means to a chemist.) When it comes to the question of how you got foul brood, in the first place, they one and all look for some outside source of contamination—by introducing queens in the original mailing-cages, by feeding bought honey, or by robber-bees. Never have I read, outside of Mr. Huxley's letter, that it can be manufactured, as it were, right in the apiary. I have been of that opinion myself for a year, but not being a scientist I could not write on the subject. Besides, I have no knowledge except from the aforesaid literature, and my own observations in my *own* hives while building up a 1-frame nucleus to 20 colonies in 3 years. Those observations have convinced me that if I am not careful I will have foul brood, and it will have originated right in my own apiary. The facts are these:

In the fall of 1906 I went into winter quarters with 3 weakish colonies. In the spring of 1907 I found one with a drone-laying queen. The old queen had been superseded late, as I clip, and she was not clipped. I sent for a queen and took all the frames with drone-brood away. Later I used those frames, putting them in with dead capped drones in worker-cells, though several weeks after. These combs were used in the 3 original colonies, the increase building new combs and several times through the year there were scattering cells of dead brood in those 3 colonies, the brood turning yellow before dragged out.

They went into winter quarters reasonably strong (outdoor wintering in double-walled, cork-packed hives), and from each of those 3 colonies I would scrape out weekly about a half cupful of dead bees, while from the other 6 about a score. The past spring they were terribly weak, dead brood scattered all over, and some yellow, some jet black, and some dried down to a scale at the bottom of the cell, and some perforated cappings. Everything according to illustrations and description—foul brood—except that there was no odor (and I certainly know the smell of glue), and not the slightest ropiness in any I tried, and I tried hundreds. I changed them with very strong colonies, and as I number the same as Dr. Miller, I charged back in 3 weeks. There was great improvement, but not perfect, so I requeened. But there has been more or less trouble right along until the fall flow set in, which is practically the only flow here for surplus. I have all frames marked where any brood has died, for further observations next year.

My opinion is that let brood die in a weak colony from any cause, whether pollen-starved or otherwise starved, chilled, or any other way, and that brood stays in the cells till rotten, subsequent brood is likely to be contaminated, and with continued neglect, bad weather, etc., will eventually turn into mild and then virulent foul brood. Of course, being only a novice, I am not entitled to propound a theory, and my opinion is not worth much, but if correct and we all knew it, how easy it would be to keep our apiaries clean. I for one in the future will cut comb containing patches of dead brood before I give the frame to the bees.

The reason for this letter at this time is that the National Convention will discuss this side of the foul brood question. It is a sure thing that we have to know more about it than we know at present. We seem to be about at the end of the beaten track, so we must try a new path, and if after all the fanfare of trumpets this coming convention has had, nothing more is dished up than a paper after the style of the one lately read by F. R. Davenport at a meeting of the Texas Bee-Keepers' Association, I think Dr. Bohrer in the September American Bee Journal hits the nail on the head exactly.

Port Richmond, N. Y.

Introducing Queens — Classification of Queens

BY EDWIN BEVINS.

I have been killing old queens and introducing young ones for quite a while, and am not done yet (September 19). I have bought all queens but one from queen-breeders here and there. I had one swarm this season, September 3—the only swarm from 100 colonies. I expected to get some queen-cells to give to other colonies, but before I got them ready some young queen in the swarming colony got around and stung all cells but one. I put the frame with this in a queenless colony, and have one new queen reared in the yard. By the way, I have a sort of liking for young queens reared in the yard. The bees of some reared in the yard last season have beaten everything in the yard this season. I bought and introduced quite a number of queens a year ago. Some have proved to be good, some bad, and some halfway between. I have just killed 3 out of 4 purchased of one man last fall. A select untested queen from Ohio, costing me $1.25, has proven nearly worthless for comb honey production, or perhaps it would be better to say her bees have so proven. I will try her next season for extracted honey.

It has been my practice ever since I began to be interested in bees (some 15 years ago) to buy of queen-breeders a few queens every year. I have bought some from the most noted breeders and many from breeders of less repute. With very few exceptions the queens have been what I might reasonably expect for the money paid. There is in the yard the blood of queens from nearly half of the States of the Union, and be it a consequence or not, my bees are hustlers when there is anything to hustle for.

I am trying this season to introduce queens by the Abbott plan. I receive a queen by mail, then I put an empty comb-honey super or a rim about 2 inches on the hive, and lay the cage, wire-cloth down, on top of the brood-frames without removing the cork. Leave it so for about 24 hours. Then prepare an empty hive with excluder-zinc before the entrance, then set the hive with doomed queen off its stand and put an empty hive in its place. Then I shake the bees from the combs in front of the empty hive, and put the combs in the hive in the same order as found in the old hive. This way of finding queens is a necessity with me, as my eyesight is now so poor that it is nearly impossible to distinguish the queen from any other bee. Even with this method, if the sun is not shining brightly on the front of the hive, I have to get some other person to find and kill the queen. Some readers may say or think I had better get out of the

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business, but I won't just yet. Mind and hand run that way, and both must have something to do.

With this digression, I will proceed to say that I do not know how successful I shall be with my efforts to introduce in the way indicated, but I am not expecting many failures. I will say further, regarding the method, that as soon as the combs are all in the new hive I lay the cage back on top of the frames and put on the super and cover as before, and do not remove the cork from the candy till the bees have had a few hours in which to realize their queenlessness.

Looking into one hive a few days ago, I found the cage empty and quite a good-sized ball of bees on the frames in front of the cage. This did not give me much concern as I had had a similar experience before.

A year ago I attempted to introduce 3 queens by the method I have been describing. The work was done by another, but I got out in time to note results. One colony proved later to be queenless. On the frames of another colony I found a large ball of bees, and on smoking the bees enough to make them disperse I found they had had a queen in their midst. Afterward I saw her on the combs apparently uninjured. Her colony is a large one now. I have had very good success in introducing queens so late in the fall that there would be no brood in the hive, sealed or unsealed. The danger is that there may be a little unsealed brood and eggs that escape observation. Those having extracting hives or supers above excluders, have an almost certain means of getting queens safely introduced: Take off the hive or super when there is a goodly number of bees in it and set it down on a flat bottom-board, put some thin wedges under 2 corners of the hive and leave the bees confined for about 48 hours. Then put the cage with the queen on top of the frames with the cork removed, and the bees proceed at once to release her, being hungry for a queen. I like this as well as the nucleus-box plan, and it is a little less trouble. The bees and queen can be united with any colony you see fit to make queenless if you use well-known precautions.

I have just now introduced a valuable queen in this way and united with a colony that has bees and stores enough for safe wintering. I will modify this a little by saying that I killed the queen of an 8-frame colony, then set the frames over into a 10-frame hive before uniting, as the colony with queen was in a 10-frame hive. A few days after the union I found brood in 2 combs in the lower hive, and as the upper one had but 8 there was just room for these 2 combs in it. After putting brood in the center I took away the lower hive, putting the upper one in its place, then set the lower hive 8 or 10 feet in front of the old stand, closed so that only a few bees could get in or out at once, and the bees soon carried what honey was in it—somewhere. I reckon most of it went into the hive on the old stand.

I do not now use many hives of the 8-frame dovetailed size for rearing brood at the season of the year when brood is being reared to make workers for the harvest. Having a good supply of hives holding 9, 10, and 11 frames, I use a good many of these in the spring. My practice is to set the combs of the 8-frame hives into the larger hives in the fall, and fill up with combs of sealed honey if I have them, and, if not, with frames of drawn comb, and then feed sugar syrup till I get the hives of the desired weight. Then when the honey harvest comes I leave the strongest colonies in the large hives and return the weaker ones to the 8-frame hives. As I use largely of drawn combs when hiving swarms, if the swarm is not unusually large, I hive it in an 8-frame hive, and sometimes contract by means of dummies to 6 frames when working for comb honey. Sections are filled rapidly by not very strong colonies when thus contracted. But these contracted brood-chambers must be seen to later.

If I were to begin bee-keeping again, and my choice of hives were confined to the hives now in general use, I think I should begin with the 10-frame Langstroth hive. It is easy to make an 8 or 9-frame hive out of it if desired, and then have it a 10-frame hive for winter. It is a good hive for both comb and extracted honey. I will here say what I should have said before, that an 8-frame hive put on top of another 8-frame hive for enlargement of the brood-chamber is an awkward makeshift for a hive wide enough to take all of the combs needed for the most prolific queens. There is more enlargement at one time than is generally needed, and two hive-bodies of standard depth are not desirable for wintering.

If I were to work altogether for extracted honey I feel pretty sure that I should use the Dadant hive, or a slight modification of it. I have used some of them for many years, and know of nothing better for the lazy man and the man busied with other things. Just think how a queen must have to hump herself to fill 10 or 11 Quinby frames with brood. She so seldom thinks of going up into the super that it is not worth while to use excluders. All one has to do is to put on supers, and the bees do the rest all season, and seldom think about swarming. If it had not been for the fact that extracted honey got a black eye some years ago, I would have more of these hives today. I predict for them a big future.

Many of the hives in use require more manipulation than the profits of the business justify or ever will justify. What wonders the Aspinwall non-swarming hive will work in the industry I do not know, and never shall know, as it is so near "sundown" for me. The Dadant hive is almost a non-swarmer. The man who expects success with them must give heed to the kind of queens he uses. Queens of just ordinary prolificness will not do.

I was so interested in the 10-frame divisible brood-chamber hive described by Mr. Scholl last year in a letter to Harry Lathrup, that I went to work and made a few, intending to try some of them this season, but the season has been such a poor one that I got nothing done except a few combs built in 2 or 3 sections.

Perhaps I ought to have said before that the nucleus-box is a good thing when bees above excluders are not available; and perhaps I ought to have said that when setting combs from 9, 10 and 11 frame hives over into 8-frame hives at the beginning of the honey-flow, I put the combs with most brood into 8-frame hives, and if there is an excess I give them to colonies that need strengthening, or else make nuclei. And perhaps I ought to have said that the reason why I use the Abbott plan for introducing queens is because that is the lazy man's way, and because I think the failures will not be enough to hurt much.

A safe way to introduce queens is: Buy a nucleus of one or more frames with queen, and let the other fellow take all the risk.

The practice of some queen-breeders to classify queens as untested, select untested, tested, and select tested, never struck me as being an altogether fair way of doing business. An untested queen is an untested queen, and who is to say with any degree of positiveness that one is better than another? It may be a little different with tested queens, but it seems to me that the man who buys a tested queen is entitled to as good a one as there is below the breeding class. If some buyers have to take the culls, other buyers should get as good as there are in the class they buy from. I will not go so far as to advise bee-keepers to boycott the breeders who make these distinctions, but I have felt all along, since they began to be made, that somebody was not getting a square deal.

Leon, Iowa.

Swarm-Control and Preparing for the Honey-Flow

BY CHAS. TROUT.

It is an established fact that to produce the greatest amount of honey we must control the tendency of the honey-bee to swarm. Especially is this so with the producer of comb honey.

For several years I have tried numerous methods and have arrived at the following conclusions, namely that there are three main reasons why bees swarm. These are a desire for more room; hereditary instinct; poor ventilation and communication of hives and supers. If this theory is correct, then our problem is to eliminate these faults. To do this we must provide hives and bees which are free of these conditions.

The hive I use is a 10-frame one of Langstroth dimensions. Ventilation is supplied through the supers by a ⅞-inch hole bored in one end of each super, and covered with wire netting on the inside. The super is placed on the hive so that the hole in the super comes directly over the entrance. It must never face the rear of the hive, as that causes a draft over the brood. As extracting supers have free communication we have only the comb honey super to deal with. Comb honey supers which have plain sections and fences already,

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have this, but not so with the bee-way supers. To supply this to those supers, use a separator which has holes 7/8-inch in diameter bored through them so that the hole comes in the center of the section. This will supply, to a limited extent, the desired communication.

Now to produce a strain of bees which lack the tendency to swarm; here we must deal with the queen, as she is the origin of the future colony. We can do this by continued efforts at queen-rearing. In the fall of each year I grade all my colonies. The colony which ranks first in honey-production, lesser desire to swarm, and gentleness, is chosen for the origin of the queens. The colonies ranking next I use to rear a limited number of drones, according to the number of colonies in the apiary.

About 8 or 9 weeks before the main honey-flow in the spring, I start queen and drone rearing. If it is necessary the colonies are stimulated with combs of sealed honey.

My queens are reared in strong colonies above excluders, from select larvæ. When the cells are sealed they are placed in a nursery cage similar to that used by the A. I. Root Co. When the virgins are about ready to hatch, I go through the apiary, giving combs of sealed honey wherever needed, and placing the queen above the excluder. Upon the virgins hatching they are allowed to run in at the entrances of the hives. This is about 5 weeks before the honey-flow.

About a week before the flow starts I go through the apiary, adding supers, removing the brood from the brood-chamber to the supers, and replacing with foundation or empty, dry combs, according as the colony is to produce comb or extracted honey. The old queens are removed, being killed or used for increase.

Now each colony has a young queen that will be less likely to swarm than an older one. All colonies are strong, having the old queen, and, for nearly 3 weeks, 2 queens to build them up. They have plenty of room, and are ready for the honey-flow. Those colonies which are going to produce comb honey have a brood-chamber of foundation, an extracting-super of brood, with a section super between it and the hive proper. The colonies producing extracted honey have 2 supers of brood.

When the honey-flow starts, those colonies which produce comb honey, having been compelled to pass through the section super by the super of brood above, readily enter it and start work upon that super being removed. This is done by placing a bee-escape between the 2 supers when the brood is found sealed. Then the hatching bees go below and empty the super.

From 54 colonies run for comb honey I removed an average of 150 pounds of fancy comb honey. There were no swarms, and the season was very poor.

I have practised this system only the last season, and therefore I am not sure of it. But from all my experimental apiaries, good results were obtained.

These are the chief advantages of this method: We have very strong colonies with young queens. Each colony has been requeened from select stock without a day lost of the laying queen. We have a chance to test our origin. Then, at an opportune time, we have 2 queens laying. Also, I have a theory that a young virgin queen will lend to the colony part of that vigor.

Now in conclusion let me say that this method is still in the experimental stage. Last season it proved a success in my experimental apiaries, but still it isn't a sure success until it has been tried under various circumstances. If you will give this lots of thought you will readily see many reasons, which I have not mentioned, why it should become, under the right management, a success.

Redlands, Calif.

Something About Bumble-Bees

On page 55, "New York" asks, "What becomes of bumble-bees when cold weather comes on?" We have had several responses to this question, the following being from Dr. Mahin, of Indiana, who has this to say about

What Becomes of Bumble-Bees in the Fall?

I think I can answer the question satisfactorily, as I have had some opportunity to observe the habits and natural history of that interesting and useful member of the insect world. Some years ago I had a nest of bumble-bees under observation a whole season. In my back lot, among the apple-trees, I discovered a large queen or mother bumble-bee making her nest in a bunch of dead grass. I got a box that had been used for a cap on an old box-hive, having a hole in one side of it, and this I placed over the nest for its protection, and carefully observed the development of the infant colony. The mother-bee gathered a ball of pollen-mixed honey, the ball being about the size of a large hazel-nut, and laid an egg in it. That done, she proceeded to form another ball, and so on until she had quite a cluster. When the eggs hatched the larvæ fed on the pollen and honey until they were fully developed as larvæ, when they spun their cocoons and in due time emerged as full-grown bumble-bees.

But these bumble-bees were *workers*. They were not much more than half the size of their mother, and were, like the worker-bees in our hives, imperfectly developed and barren females. As soon as they were old enough they began to make balls of honey and pollen, and then the population of the colony increased more rapidly, and the mother-bee probably ceased entirely to gather pollen and honey, leaving that work to her children.

Later in the season larger balls were made, and the eggs laid in these developed into perfect females, or queens, and into drones about the size of the queens—a little longer perhaps, a little more slender, and somewhat lighter in color. But a practised eye will readily distinguish them. Like the drones of the honey-bee, they are stingless.

As with the honey-bees, the mating of the queens and drones takes place away from the nest. I used to see drones sitting on the outside of my bumble-bee hive watching for the young queens to come out, and as soon as a queen would come out and take wing a drone would give chase. But I could never witness the mating.

The drone bumble-bee is not helpless like his cousin of the bee-hive, for he can help himself to the nectar of the flowers as easily as his sisters do. As the cold weather comes on, and the frost kills the latest and hardiest of the flowers, the drones and workers of the nest perish, nearly but not quite all dying away from the nest. The perfect and fecundated females seek the most secluded and protected places they can find, and hibernate until the warm sunshine of the spring awakes them from their winter's nap, and at the same time brings out the earliest flowers to furnish them sustenance. Of course, very many of the fecundated females perish during the winter. (Rev.) M. Mahin, D.D.

New Castle, Ind.

Mr. Isaac F. Tillinghast, of Factoryville, Pa., kindly sent us a clipping taken from Colman's Rural World, of February 12, 1908, which tells how and where the bumble-bees pass the winter. It reads as follows:

Bumble-Bees in Winter.

The following bit of natural history written by Col. Isaac W. Brown, the famous "bird and bee man," appeared in a recent number of the Bible Record:

I have been very much interested this summer in noting that at all the Chautauqua schools great interest in nature study has been manifest. Many lecturers have given the stinged insects much credit for the work they do in making life better and easier for the human race. The lecturers easily proved that the bumble-bee was that friend, but did not have time to speak of the home life of that bee.

I write this little story therefore, with the thought that many people beginning to realize that creature's vast importance in the economy of nature (the thoughts of God) will desire to have his presence and aid. Many a colony of bumble-bees has been burned in its home by people who had no idea they were destroying their friends. There are not one-tenth as many bumble-bees in the agricultural districts as there were in boyhood days. More is the pity, for 25 years from now colonies of bumble-bees will be valued at from $25 to $50 each in agricultural districts.

The female bumble lives from 2 to 5 years, and has her stinger to protect her in fighting life's battles. The male has no stinger, because he has no battles to fight. He is born in June, lives a luxurious life among the flowers until frost time. He is then "married," and always goes from his wedding trip to his grave. His widow goes into a dormant condition, usually one or 2 inches below the family home, and so remains until the following spring. The usual number of female bees so hibernating in a home is about 10 to 17. Her hope is that she may have sufficient strength in the spring to reach the little cups of stored honey above her head, and feasting thereon for 2 or 3 days, go out into the world and make a new home for herself and her children to be.

The time will come when those homes

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will be provided during the winter-time and placed in proper position for the widow's use.

We are now using old felt hats torn into shreds, and other soft material, for filling bumble-bee boxes. We use that kind of material for the reason that the bumble-bee first makes but one cell and likes to make that surrounded by very soft material, so that as she makes the other cells she may easily make room in her nest. The boxes are made 8 inches high and one foot square out of old, well-worn lumber. The entrance holes are made one-fourth of an inch in diameter—large enough for the bees, but too small for other animals. The boxes are just put carelessly along the fences of clover fields and orchards.

New Comb Honey Grading Rules of the Colorado Association

No. 1 White.

Sections to be well filled and evenly capped, except the outside row, next to the wood, honey white or slightly amber, comb and cappings white and not projecting beyond the wood, wood to be well cleaned; cases of separatored honey to average 21 pounds net per case of 24 sections, no section in this grade to weigh less than 13½ ounces.

Cases of half-separatored honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 23 pounds net per case of 24 sections.

No. 1 Light Amber.

Sections to be well filled and evenly capped, except the outside row, next to the wood, honey white or light amber; comb and cappings from white to off color, but not dark. Comb not projecting beyond the wood, wood to be well cleaned.

Cases of separatored honey to average 21 pounds net per case of 24 sections; no section in this grade to weigh less than 13½ ounces.

Cases of half-separatored honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 23 pounds net per case of 24 sections.

No. 2.

Includes all white honey and amber honey not included in the above grades. Sections to be fairly well filled and capped, no more than 25 uncapped cells, exclusive of outside row, permitted in this grade; wood to be well cleaned. No section in this grade to weigh less than 12 ounces.

Cases of separatored honey to average not less than 19 pounds net.

Cases of half-separatored honey to average not less than 20 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 21 pounds net per case of 24 sections.

Removing and Handling Filled Supers.

Comb honey should be taken off as soon as completely capped, no more smoke than necessary should be used, and the smoker kept well filled with fuel so no ashes will blow out and spot the cappings. If finished supers are stored in the honey-house, one or several sheets of newspaper should be used between supers, to catch any possible drip, and keep out dust and ants.

Cases should be well nailed with cement-coated nails and glasses perfectly clean. If edges of covers and bottoms project they should be planed off; if this is not done many boards will split in shipping. The whitest, smoothest boards should be reserved for the covers, and the others used for bottoms. The paper tray in the bottom should be evenly folded, and drip-sticks secured in their proper places by the use of a little glue or thick honey on their under side. Nail cover on firmly when case is filled.

The mark of the grade of honey should be put into *both handholes* of the case; *X stands for No. 1 white; one dash for No. 1 light amber, two dashes for No. 2.* The marking of filled cases should be done before they go to the storage pile.

Second-hand cases should be used only for the casing of cull honey, never for the shipping grades.

Cleaning and Casing Honey.

This work must be done in a well lighted place, and a large bench or table provided for it. The shipping-cases to receive the honey should be placed so as to face the packer, and should be arranged so no propolis from scraping will fly into them. It is desirable to have several cases for each grade on the bench, so that honey of the same shade and finish may go in the same case. A definite place should always be used for each grade to avoid errors in casing.

An accurate spring scale should be handy to weigh doubtful sections.

The practise of piling honey on the bench before casing is not recommended, as honey is more subject to injury, and time is lost in casing. It is desirable that the packer should have a copy of the grading rules hung up before him for ready reference, and where this work is entrusted to others, the apiarist should provide specimen sections representing the poorest of each respective grade, and give strict orders that anything inferior to these samples must go into the next grade below.

The face of each case should be of uniform color and finish and truly represent the contents of the case.

Cull Honey is Composed of the Following.

Honey in badly stained sections, caused by leaky covers.

Honey that shows signs of granulation.

Sections that are leaking or where the cappings are injured.

Sections that are fairly well capped, but have more than 25 open cells.

Sections that are capped, but weigh less than 12 ounces.

All cull honey should be marketed around home, or rendered.

Hauling of Comb Honey.

The proper time to haul and ship comb honey, is while the weather is still warm, therefore no time should be lost in getting the crop ready. In hauling by wagon, it is desirable to provide springs for the wagon-bed, and if these cannot be had, a layer of three or four inches of straw should be used in the wagon, on top of this should be spread a canvas or large wagon cover in such a way that after the wagon is fully loaded the canvas will fold over the top of the load, thoroughly protecting the honey from dust or a possible shower.

The bed of a regular farm wagon will take 96 cases of honey. A good, steady team and careful driver are required to haul comb honey safely.

Honey-Vinegar as Food vs. the Other Kind

BY C. W. DAYTON.

Honey sealed up in air-tight cans, or in open receptacles, loses a part of its substance by the changes which are wrought by expansion and contraction. The waste is carbon dioxide, as for its method of change, and the final product is carbonic acid gas. The carbonic acid which is expelled from the lungs is carbon dioxide, until it has been resupplied with oxygen from the air. Then it becomes acid gas, the same as acetic acid vinegar is carbonic acid liquid. One is as nutritious as the other.

The oxygen of the air is unorganized and inefficient in electrical magnetism. The cause of nearly all diseases is that the system appropriates more of the unorganized oxygen of the atmosphere than of the organized oxygen of nutritive foods. Food lacks nutrition because it has been divested of its electrical magnetism during the process of manufacture, or when not manufactured they may have been grown on soils in conditions where they utilized too great a proportion of carbon and nitrogenous elements.

The purpose of organized oxygen is for the transportation of electro-magnetism, an invisible and imponderable substance, but the most important of all substances. The unorganized, atmospheric oxygen which we take into our lungs is as much a foreign substance as is a sliver of poisonous wood in a finger. If it did not possess affinity for carbon dioxide it would never remove it from the system. As the unorganized oxygen courses through the lungs and arteries it comes into contact with organized oxygen elements which endeavor to expel it from the system. An over-amount of deep respirations is as injurious as the lack of respiratory activity. It fills the blood with unorganized oxygen so that when there is much unorganized oxygen in the food the amount is rendered excessive. We live by a balance. When we become far unbalanced death ensues. The purpose of the 5 senses is for the determination and maintenance of this balance.

When the system becomes balanced—near perfect health—that is, if the impurities are removed from the system as rapidly as they are produced—now if that person undertakes to drink a glass of beer or food containing acetic acid vinegar, the first swallow will act as a

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clog in his throat as though it were dry bread. It is nearly impossible for a healthy person to drink a glass of beer or any substance containing atmospheric oxygen products. As soon as it comes in contact with the organized elements of the system it effervesces, or else it overpowers the living organisms it meets and destroys their vitality.

Effervescence is the process of sudden disorganization into the finest atoms, and these atoms are so fine that they penetrate the nerve filaments so that the organs which perform the swallowing, or deglutition, become inactive, or for a space of time, paralyzed. But this does not prevent a glass of bad beer finding its way into the stomach. The muscles which compose the gullet, or esophagus, can be brought into such a shape that the beer can be *poured* down, the same as water can be poured through a straight tube. By this method there is a lack of the necessary deglutition. After a few trials the drinker becomes accustomed to fixing the esophagus in the particular shape as his hand, eyes, nose, tongue and his internal desires divine.

After the esophagus has neglected to perform its part of deglutition, the neighboring organs, such as the salivary and organs connected with and forming the stomach, neglect to perform their duties properly. Not only neglect to perform their share of digestion, but in time they become *unable* to do their part. It is the same with bee-keepers. They may think and presume to rear queens, but put it off until some future time, but unless they rear queens all along they will find themselves unable to rear queens at all satisfactorily. Words and deeds are two different things. They will be found *trying* to rear queens. It will take a number of seasons before their queens are of greater account than lightning bugs. They will compare with the milch cows which dairymen talk about nowadays—that eat their heads off.

In the matter of food substances, some commodities can be manufactured more rapidly than they can be grown from properly prepared soils, but we can not reconstruct disorganized elements by machinery. They may look tempting and have some agreeable aroma, but electro-magnetism has no aroma nor appearance. Force can not be distinguished by smell or taste. The system will be compelled to utilize unorganized materials which sooner or later must cause it to refuse to run from lack of power in some organ.

Honey contains the most organized oxygen of any substances. It is not only the most in quantity, but it is also strong in carbon. The use of the carbon is to produce friction, the same as sand in the box of an axle. It assists to burst and disintegrate the nutrient cells of substances, which has the effect to produce a higher and quicker action, or, as may be said, explosiveness. When a nutritious substance comes into contact with the muscular lining of the digestive organs they are set into immediate activity, but if those muscles have been partly reconstructed of unorganized material, the sensatory nerves are less protected, and the carbon acts as an irritant, and causes a griping pain. This griping is usually located in the duodenum, or that part of the alimentary tract immediately following the stomach. It indicates that the bowels have been accustomed to food substances which excited less activity. These foods may have been meats containing commercial preservatives, bread, vegetables, or fruits raised on poor soil, or any of the health preparations which may have been manufactured and stood on the dealers' shelves considerable time. Their only value is the sugar and cream or butter. Tartaric acid and ammonia are expanders, and they use up a large portion of the electro-magnetic force in the operation. In fact, they operate by the use of the magnetic force of the substance. Condensed foods like flour or honey should be expanded by mixing them with bulky vegetables like beets, carrots, cabbage, etc.

Sugar dissolves more quickly than honey because its atoms are unorganized. They are held together by adhesion instead of affinity. Any one can determine the difference between affinity and adhesion by dissolving wheat flour in cold water. If the flour is old it will mix more readily than when new. As a lubricant for the rolls of the foundation mills I always use wheat-flour paste—flour and water boiled together. They should be mixed before the heat is applied. If the flour is a year old, or if the flour is ground from wheat which is 3 years old, the paste will be so poor as to be of little account. It will wash off from the rolls a good deal like chalk, and the sheets of wax will stick. In the boiling of poor flour the paste will be thick in one or 2 minutes, but if the flour is from new wheat it requires 10 to 15 minutes' boiling. There is also a variation in the water. It may be soft like rain water, or it may be what is known as "hard" water, obtained from some wells, and contains lime or carbon. Hard water makes paste in less time, but it is not so good for use.

The age of vegetables makes a variation in the time required for them to cook. When young there is no organized oxygen. If cooked whole the outside is cooked several times while the inside part may not be cooked enough. The overdone portion is rendered unnutritious by expelling its organized oxygen and unorganized oxygen of the air taking its place, and a decided difference can be noticed in their digestion. If reheated, the atmospheric oxygen will be expelled and digestion will be improved, but the electro-magnetism is not there, and less strength will be produced.

The life of the flour paste is within the gluten cells. Heat applied bursts these cells. If cooked too long the vitality will be driven out and the paste, though soft and plastic, will not adhere sufficiently to shut out atmosphere by what is called suction. These points may seem small to the honey-producer, but to him who makes much foundation it pays to look to the paste or lubricant used on the rolls. It will require electro-magnetism. Bees have no use for dry granulated honey, because it is deficient in electro-magnetism. It has changed its organized oxygen for the unorganized atmospheric oxygen by mutual contact. If the bees added water and consumed such granulated honey, it would produce general debility in their systems. If we heat up a couple of gallons of such honey by adding water and set it off to cool, in a few hours there will be no sweetness in it. The atmosphere carries it away. If its sweet were organized cells of magnetism, such a phenomenon could not happen except to a very slight extent.

When we wish to start fermentation in honey, we mix it with water the same as we irrigate a piece of land to make vegetation grow. If sufficient honey is put in no other ferments can thrive, because all other ferments grow by the aid of atmospheric oxygen. These spores of fermentation come from the atmosphere as the atmosphere carries every variety of spore. The variety of ferment in a sweetened liquid will be decided by the amount or percentage of richness in the sweet liquid. If no ferment is exactly suited to use the particular amount of sweetness, then a ferment will be propagated by the process of one ferment succeeding another until a suitable ferment is produced by evolution. All other ferments will be choked out until the honey ferment has run its course. After this point is reached there will be no more honey in the liquid. There may be some vestiges of partially-developed cells, and from that down to ordinary vegetable protoplasm, albumen and gluten. The organized oxygen and electro-magnetism have disappeared. If this fermentation has taken place in the muscle cells it would have produced power but no intoxication. Its atoms were not of sufficient fitness to penetrate the nerve filaments. This ferment is not alcoholic any more than stomach digestion is alcoholic. But the successive and succeeding ferments which start up and utilize the unorganized substances which remain are alcoholic. After one alcoholic ferment has run its course another starts, continuing to utilize the refuse remaining from the preceeding ferment. Each succeeding ferment is more rapid than the preceding. As they can obtain a supply of oxygen only from the surface of the liquid, ferments are propagated which can thrive with less and still less oxygen until the dearth of oxygen operates as a vacuum. It is a substance that is badly out of order in respect to its equivalent elements, especially oxygen and electro-magnetism. It is less than the atmosphere. It is nearly identical to ether, which occupies the space 50 miles from our planet. Ether penetrates where air is shut out.

Some varieties of corn attain to the height of 15 feet, and others not more than 2 or 3 feet. White clover gets about 6 inches high where red clover grows 2 or more feet. I have seen pines 12 feet in diameter growing beside other varieties of pine which never attain a diameter of greater than 12 inches. The polar bear may weigh nearly a ton, while there are other bears which do not exceed the size of a house-cat. Because some colonies of bees do not exceed 10,000 to 15,000 bees, while others number 75,000 to 100,000 bees, does not change the variety of bees. Ferment fungi are varied by environment also. The consistency of honey is governed or varied by the plants from which it is

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athered, and the plants by environ-ents caused by situation, heat, and oisture, and the best way to judge of ferment is by the taste of the fer-enting substance.

To place the honey ferment along-de of the alcoholic or acetic acid of inegar, should be compared to placing rn beside the bitter weeds. The low lcoholic ferments are as the moss hich grows on the most barren rocks nd require ages to show perceptible rogress and living entirely upon at-nospheric elements.

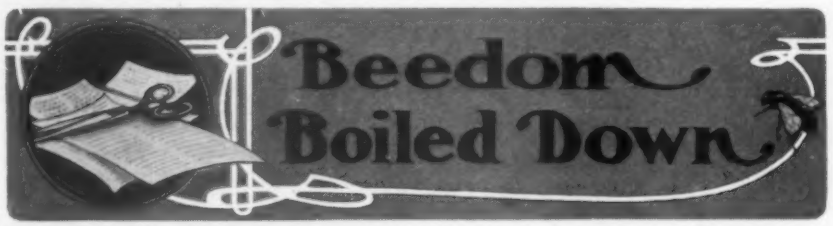
The purpose of alcoholic and acetic cid vinegar is to give tart or acid flavor to insipid foods. Being deficient in its equivalent elements it absorbs from the food such elements as it lacks. These elements are oxygen and its attendant electro-magnetism. Whenever foods contain these elements in sufficient amounts they are not insipid. When a mouthful of bread is masticated with saliva its starch changes into sugar, and the sugar renders the bread sweet in taste and in need of no farther flavoring or lubrication. If it does not act that way, then salivation is poor, or else the bread is "make-believe" bread. Butter, honey, or vinegar added to a dead substance is like putting cartoons (not cartons) on sections of honey which would be hard to sell otherwise. The cartoon does not sell the honey, but the honey sells the cartoon. Hungry people do not come to the grocery store to buy pictures. Fancy receptacles and pictures are "make believes." Turn them down! "Turn down" the dealer and "turn down" the producer. This matter of nutritious food is one of the instances where the "hand-to-mouth" fashion of living should be superelegant.

Cartoons of fancy girls, fat bums, and highly-colored posies work finely in the store and along the way home, but when the contents are spread before the guests, there are likely to be misgivings. The disappointments come from the inside, not from the outer show of the package. If there were no disappointments in the foods there would be no need of showy packages. Showy packages are one of the prolific causes of perverted appetites, diseased digestive organs, and the filling of "early graves." Put a quietus on the murderous work by keeping this outside show between yourself and the grave. Let it die the death it merits. If nutritious food can not be bought then learn to produce it. You will have to study. Perhaps progress backward one or two generations. It may make us odd and unpopular. The sacrifice is worth while if you value life.

Most of the competition of the present age is in the searching for the most worthless substance to put up in the most deceptive packages and sell at the same price as the genuine, honest product. Alcoholic vinegars cause us to eat food for the vinegar only, and a greater quantity than the system needs, so that the bulkiness is a clog to digestion, and for this there is much repentance, but the causes of the troubles are not discovered.

The commendable qualities of acetic vinegar are a deception and a snare—its sparkling clearness, its keeping, and its ethereal penetration. It is a bare foot on a live coal of fire. It creates activity—*in a way*. We can not conscientiously fight such frauds as corn syrup while matters are tangled in the honey camp. If chemical science can do no better, we best go back to the vinegar our mothers used to make.

Chatsworth, Calif.



Some Varieties of Bees.

In a well studied article in the Bee-Keeper's Review, Ralph Benton, speaking of Cyprians, says:

"In temper they are very excitable and, when once aroused, their temper is of longer duration than other bees. In opening the hives, care should be taken not to jar them or let the light in too suddenly. The writer prefers to handle them without smoke, as they resent its application, characteristically standing and sizzling until it clears away, when they vent their rage and sting viciously. On the other hand, with care, Cyprians can be handled with perfect immunity without veil or other protection. They are a most vigorous and prolific variety, good honey-gatherers, and defend their hives well. They shake easily from the combs, although they remain quiet under manipulation. They are good winterers, and appear to be most resistant to the attacks of disease. They have the longest tongues of any bees, and so visit a wider range of flowers. They will find honey when other bees give up, and their power of flight is markedly better than some other varieties. They cap their honey watery, due to the filling of the cells so full, and they do not gather much propolis. They start innumerable queen-cells, and so, in point of number, are desirable for the queen-breeder, though their cells are not as large as those of Carniolans—the largest cell builders."

After speaking of the gentleness of the Caucasians, he says:

"They are good honey-gatherers, defend their hives well, winter well, build up rapidly, and we have reason to believe are fairly disease-resistant. They cap their honey only fairly white, and gather propolis at certain seasons, namely in the fall, thus not making this an undesirable tendency for comb honey production. The propolis when gathered is bunched about the entrance and lower part of the hive in an interesting and peculiar manner. These bees, together with the Cyprians, have an average swarming tendency on account of their prolificness and are better kept in large hives."

As to Carniolans:

"They may be handled with but little or no smoke under ordinary circumstances, and respond well to its use. They are the most excellent winterers and build up the fastest of any bees, rearing brood under the most adverse conditions. They are the least inclined to rob of any bees, and are most excellent searchers for honey. They have splendid powers of flight, but are governed by atmospheric changes in a most noticeable degree. At all times it may be said that they show their exact emotional, or other states, and so are a bee well adapted for general use, since the apiarist can depend upon them and may know their condition in an instant. They are very prolific and do not permit of crowding. They cap their honey white, and gather the least propolis of any bees."

With regard to crosses, he thinks the two most promising are those resulting from the mating of queens of pure Cyprian blood to drones of Carniolan blood, and the like queens mated to Caucasian drones. It is found, in general, that the queen transmits the prolificness, honey-gathering, and like qualities, while the drone transmits the temper, and he says: "In the case of the majority of the Cyprio-Carniolan or Cyprio-Caucasian queens the desirable qualities of the two varieties obtain in the progeny." But, as Editor Hutchinson says with regard to these crosses, "the difficulty is to retain them—as the years go by there are all sorts of mix-ups."

Size of Brood-Chamber and Swarming

It may be that those who are just beginning bee-keeping may learn, before the close of their careers, just what steps to take to prevent all swarming, but it certainly is not yet a solved problem. Some things, to be sure, are pretty generally agreed on, but even as to some of these, questionings sometimes arise.

It is pretty generally agreed that a very small brood-chamber favors swarming, and that a large one goes a long way toward prevention, and the very small amount of swarming the Dadants have had with their large brood-chambers strongly argues in that direction. Yet if size of brood-chamber alone would settle the matter, we ought easily to settle upon a size beyond which there would be absolutely no swarming. That size has never been found; bees have been known to swarm when they had unlimited room in the brood-chamber, as in an attic.

The fact is, probably, that the size of the brood-nest, or the room occupied by the queen, is the important thing, and this does not always coincide with the size of the brood-chamber. While it is impossible to have a very large brood-nest in a very small brood-chamber, it is possible to have a limited brood-nest in a very large brood-chamber.

This matter is discussed in the Irish Bee Journal, by that level-headed Scotchman, D. M. Macdonald. He argues that a frame may be too deep as well as too shallow, the bees occupying too much of the deep frame with honey. So he favors a medium depth, and thinks the "standard" is about as near the right thing as we are likely to strike. The "standard" frame adopted by the British Beekeepers' Association is 17x 8½, and doubtless that is the frame to which he refers. He says:

"Last year my only swarm was from a large hive, and I read lately of a case where all the large hives swarmed, placed alongside those with frames the equivalent in depth of our standard size. In another case known to me, as many swarms are obtained from deep as from standard frames, and as a rule they swarm before there is any apparent necessity.

"A fellow teacher, fond of experiment, supplies me with the following in regard to deep frames as a deterrent. He made hives with frames 17 inches by 13 inches deep, thinking that thus he would check or eliminate the swarming impulse. Every one of these swarmed, though the brood-chamber was not taken full

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possession of. Colonies which he never would expect to swarm in the smaller hives, swarmed in these large ones, so he naturally concludes that frames can be too large for security."

Uniting Colonies.

I have accidentally discovered that, if both queens are taken away 3 hours or more previously, both colonies are temporarily demoralized, and have no fight in them, and, after a good smoking, you can unite by alternating the frames, without scent or flour, and without the loss of a single bee through fighting. After uniting, insert the queen in a cage—a cage which does not require disturbing the hive to liberate her. This is a simple plan, and will work well every time, and at any time of the day.—John Silver, in Irish Bee Journal.

Honor Among Bee-Keepers.

Oliver Foster says this in the Bee-Keepers' Review:

"In teaching and training the boys for the bee-men of the future, the code of honor, accepted by all worthy apiarists, should not be overlooked, viz., that he who first plants an apiary within a given bee-range, has a moral right to that range as a bee-pasture, while he utilizes its honey-resources. I am persuaded, from costly experience, that, from the standpoint of self-interest alone to all concerned, this rule should be observed."

Commenting on this, Editor Hutchinson says:

"The Golden Rule of bee-keeping mentioned in this issue by Oliver Foster, is one to be heeded by all bee-keepers. It may be a long time before a man can legally control the bee-pasture of a region without also owning the land, but, while waiting for that time, we can all obey this rule—never to encroach upon occupied territory. A bee-range belongs to the man who first occupies it, so long as he continues to occupy it. The man who will crowd in upon the territory of another should be looked upon as little better than a thief."

Queens Fertilized in Upper Stories.

At the time "Scientific Queen-Rearing" was published I thought it was no trick at all to get queens fertilized from upper stories with laying queens in the hives below, as I succeeded to my perfect satisfaction during the basswood flow of 1888; but 20 years of trial since then has proven that I have to record 19 failures to one of success, taking the score of years together. The many private letters I receive also show that I am not alone in these failures.—G. M. Doolittle in Gleanings.

How to Know an Old Queen.

I can recognize John Smith at a glance; but to tell you just how I recognize him so that from my description alone you can recognize him at a glance, is probably beyond me. In the same way it is easy to recognize an old queen, but not so easy to tell how. And yet it's a fair question, so I'll make a stagger at an answer. An old queen is darker and more shiny in appearance, due to loss of plumage, probably. She does not move over the comb with the vigor of a younger queen, but more slowly and feebly. In many cases she seems to lose her footing, and acts as if about to fall off the comb. Now, that doesn't seem to tell much, but I'm not sure I can do any better. I'll be glad, Mr. Editor, if you or any one else will improve upon it. It is only fair to say that even the few signs I have given are not infallible. A queen that has been balled may look black and shiny while still young. Again, I have seen a queen which looked not very old, and yet my record told me she was three or four years old.

[You have given the general characteristics that go to show an old queen; but there is a certain indescribable general appearance which is at once recognized by the veteran queen-breeder, and which to him is almost infallible.—Ed.]—Gleanings in Bee Culture.

Apiculture in Spain.

The editor of Gaceta Apicola de Espana, in the September issue, laments the condition of bee culture in Spain in very pessimistic terms. He says that, on many occasions, he has referred to the superior position of bee-keeping in Cuba, where the conditions are no better than in Spain. But he says the style of bee-keeping in Cuba is North American, not Spanish, thanks to the easy communication with that country. (The Spanish usually term our country Norte Amerique.) In Cuba the predominating flower is the campanilla, which produces a very light rich honey, much sought after by foreign merchants who export it to Europe. He claims the honey of romero (rosemary), which is common in Spain, would compete with the campanilla if given an opportunity; but the amount of honey produced by the movable-comb system in Spain is relatively very small; whereas in Cuba movable combs are the whole show. This accounts for Cuban superiority, both as to quality and quantity.

The editor is correct. Spain ought to be a great honey country. It has the right kind of flora, and excellent climate, and proximity to great honey markets. In fact, there is a great opportunity right now for the Spaniards to show what they can do if they will only follow the lead of the Cubans and import American bee-supplies by the carload. Will they rise to the opportunity and grasp it? They can very speedily overtake and surpass all European or West Indian rivals.—Gleanings in Bee Culture.

The Price of Bee-Papers.

Editor Hutchinson, of the Bee-Keepers' Review, in his October number, had this to say on the above subject, among some other things that we will not take space to copy:

"The Review has frequently commented upon the price of bee-journals, more, perhaps, than has been abolutely necessary, but nothing has done more in this country to foster, encourage and build up bee-keeping than have bee-journals. They are deserving of success; not only this, but it is decidedly to the advantage of the bee-keepers to have them succeed; and no journal can become a permanent success when published at too low a price. There has come an era of low-priced literature, and many class journals, forgetting that they appealed to a limited number of readers, immediately lowered their subscription price, hoping thereby to roll up enormous lists, only to be grievously disappointed. I doubt if there is a bee-journal that would greatly increase its list by reducing its price to 10 cents a year. Bee-keepers are not so greatly interested in their price, if it is within the bounds of reason, as they are in the character of the journals, in the information and helpfulness that they bring.

* * * * *

"Some fifteen months ago Mr. York was publishing a weekly at $1.00 a year; now he is publishing a monthly at 75 cents. One more boost, Brother York, and you will have the price where it seems to me it ought to be. You certainly are to be congratulated upon the moves you have made. As you say, bee-keepers are not cheap folks. They are willing to pay a fair price for their journals. A paltry 25 or 50 cents more each year is scarcely noticed by each subscriber, but, in the aggregate, it means all the difference between success and failure for the publisher. Brother York says that no bee-journal has been successful at so low a price as 50 cents a year. He might have gone further and said no one has been successful at less than $1.00 a year. In the publication of a journal there are a whole lot of fixed expenses that remain about the same, regardless of the price of the journal, the frequency of its issue, or the size of its subscription list, and, with the limited circulations that fall to the lot of bee-journals, there does not enough money come in to meet these expenses and leave a profit, unless the price is about $1.00 a year. If Brother York should eventually raise his price to $1.00, all of the bee-journals on this continent would be published at the same price."

Of course, it may become necessary for us to raise the price of the American Bee Journal to $1.00 a year. If we find that it cannot be kept up to its present standard at 75 cents a year, the only thing left for us to do will be to raise it to $1.00, as Mr. Hutchinson suggests. However, if we can have a sufficiently large number of subscribers, and also advertising patronage, we expect to be able to keep the price at 75 cents.

As Mr. H. says, there are certain fixed expenses that remain the same regardless of what the subscription price may be, such as office rent, cost of engravings, type-setting, etc. These could not be reduced even if a paper were only 5 cents a year in subscription price.

We always want to give our readers good value for their money, and are satisfied that we have done so, and are now doing so. We are now giving 384 large pages of reading matter for only 75 cents. That is quite a book. Of course, if there were a half-million who would take the American Bee Journal regularly it would be different, but, as Mr. H. remarks, there are only about so many who will subscribe for a bee paper anyway, and their number is not large enough to allow a publisher to issue a bee-paper at as low a price as is possible to put out a publication of a general character.

But what we would like to see our readers do now, is not only to renew their own subscriptions as fast as they expire, but also send at least one new subscription at the same time. This would soon double our list of readers, which would go far toward insuring the permanency of the present 75-cent subscription price.

Objections to Single-Tier Cases.

It is a matter of some consequence for a bee-keeper to decide as to the kind of shipping-cases he shall use. Cases containing 12 sections each have the argument in their favor that a consumer will often purchase a case when he would not think of buying a case containing 24 sections. On the other hand, it is argued that consumers seldom buy comb honey by the case, and when a jobber or wholesale dealer sells to the grocer it is no more trouble for him to sell the larger case than the smaller. Then, too, it costs the producer considerably more for 2 small cases than for a large one.

Of course 12-section cases are always

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single-tier, but when 24-section cases are under consideration there is a choice between single-tier and double-tier. According to the catalogs double-tier cases are little used, but it seems that at least Colorado bee-keepers do not hold single-tiers in highest favor. The case is thus strongly put by Wesley Foster, in Gleanings:

Comb honey is not wanted by the dealers in single-tier shipping-cases. Several cars of comb honey could be sold in the next week if the honey were put up in double-tier glass-front cases, and there are several cars of comb honey in Colorado packed in single-tier cases, some without glass, and also lacking drip-sticks, and it would have paid the producers to study the market requirements more, and paid less attention to the few cents saved on a case. Two objections are as follows:

First, in handling a carload of honey in single-tier cases one will feel twice as tired as after handling the same amount in the double-tier. One can not get the hand-hold as close to the edge as with the double tier, and there is less room for the fingers.

Second, if a case is picked up by the corners it will often twist enough in carrying to break or crack some of the honey. This is almost sure to occur if one carries in two cases at a time and does not grip them just right.

Third, the top of the sections is flush with the top of the sides of most of the single-tier cases, making breakage almost sure. In shipping, expressmen and freight-handlers drop the end of one case in the middle of another case on the pile; and if they do this at all roughly the breaking of comb is certain. Cases are stepped on often, and a single-tier case simply will not stand this usage, while a double-tier case with half the surface is safe, provided there is an eighth-inch space between the cover and the top of the section.

Fourth, from the grocer's standpoint, the glass in a case is for showing the goods; and the more goods that are shown, the better the impression, and the more honey sold. Furthermore, it is a guarantee that at least a fourth of the honey is all right if a double-tier case is used.

Fifth, a single-tier case takes up twice as much room on the counter, showcase, shelf, or floor; and since one can not put anything on top of it and still get honey out of it, the saving of half the floor space by the use of the double-tier places it far in the lead.

The objection brought against the double-tier is that broken honey will leak on to the section below. Leaky and broken honey should not be cased for shipment any way, and experience shows that this objection is not worth considering.

A uniform case, the double-tire glass front, has been adopted by Colorado bee-keepers. Let all use it, and grade strictly according to the rules.

Airship Built on Bee-Model.

Mr. F. W. Schroeder's new airship is designed as nearly as possible on the model of the bee. He can rise almost perpendicularly into the air and travel at great speed. When the Schroeder airship comes to be given away with a pound of foundation, the occupation of vagrant swarms will be gone, for we shall be able to overtake them and hive them on the wing. We recommend the idea to our most progressive suppliers of bee-keeping appliances, and to all whose sensitive emotions are antagonistic to the operation of clipping queens' wings.—The Irish Bee Journal.

Capping-Melter.

A home-made machine by which the cappings may be melted as fast as cut is thus given by Harry Lathrop, in Gleanings in Bee Culture:

I had the tinner fix a melting-pan by taking a large stamped tin dishpan, placing one a size smaller in it and connecting them together with braces, leaving an inch space between them on botom and sides for water. A half-inch copper tube reaches from the bottom of the inner pan through both pans, and projects eight inches. In use, this double pan, with inner space filled with soft water, is set directly on an ordinary cheap gasoline-burner. A comb-rest is provided by means of a piece of pine board run through the handles of the pans. A small nail driven through from below makes a point to hold the frame while uncapping. The stove is kept burning continuously while extracting; and if it does not quite keep up with the work it can be left burning during the noon hour or after the day's work is finished. I can see no danger from leaving it, but be sure that the pail under the spout is large enough to hold the contents of the pan. It works finely, and I see no need of any thing better. The wax and honey run out into a pail, but there is a certain amount of slumgum that will accumulate in the pan. This is kept from running out by means of a piece of tin notched on the under side, set about ½ in. back of the spout. After the pan has cooled, this slumgum can be peeled out in the form of a cake, to be run through the Hatch-Gemmill press if the bee-keeper is so fortunate as to possess one of those desirable machines.

Any machine devised to use any more heat than I have indicated, or any plan to run the honey over a larger heated space, will injure it. The honey must run out freely as soon as melted, and one should use the minimum of heat. We now have no cappings on hand to bother at the close of each day's extracting.

Fall Preparation of Bees.

In order to have an extra force of young bees for winter, and at the same time an extra supply of stores, Alex. Dickson, in the Canadian Bee Journal, thus advises to proceed in the fall:

Remove the outside combs, which are full of honey, and replace with empties put in the center. Your young queen is thus given a chance to do her best before the closing of the laying season, and you will find when the time for fall feeding comes that your colonies are flowing over with young bees. A colony should have at least 25 pounds of honey to winter on, so be sure to feed up all colonies having less.

The combs you have taken out to give the queen a chance to lay you will put away till feeding time, and then you can give them back as winter stores.

Extracting Outfit for Out-Apiaries.

The question whether it is better to have a separate outfit for extracting at each apiary, or to have a single outfit to be hauled from one apiary to another, depends upon circumstances, according to R. T. Rhees. He says in the Bee-Keepers' Review:

"It is cheaper to fit up a small house with a stationary extracting outfit, than fit up one equally good in the shape of an extracting wagon, hence, if a bee-keeper has only two or three yards, or where more than that number are so isolated that they can not be reached in a continuous route, I would advise a small house at each yard, hauling about only such light apparatus as can not well be kept at each yard.

"It is cheaper to fit up one good extracting outfit on a low-wheeled farm truck, than it is to fit up one equally good, or even a part of one, at each of many yards. Besides, it is quite a saving of time to have everything in place ready to commence work when you drive into the yard, which is not the case where the local honey-house is used for extracting. Therefore, I would use an extracting wagon where a number of yards are so located that they can be reached in a rotation by making short drives from one to the other."

Hot Bee-Prank in New York State.

The following interesting "bee-story" was sent to us by S. Davenport, of Indian fields, N. Y., it having appeared in a local newspaper:

From time immemorial mysterious happenings occur on Hallowe'en night and are ascribed to various agencies, from the fairy elf of imaginative origin to the mischievous imps led on by his Satanic majesty. Some of the doings may be safely attributed to the harmless fairies and others indeed to the evil one himself. Of the latter category of deeds provocative of human wrath, many are conceived in the brains of wild and reckless youth, whose minds are bent on having a little fun and a good time. And they generally get it during the nocturnal darkness of Oct. 31st.

This year's anniversary has presented no exception to the general rule and many instances of Hallowe'en pranks have been noticeable, from the lifting of the front gate and the displacement of signs and other movable objects from their wonted locations, to the elevation of grindstone and wheelbarrow to the roof of the blacksmith's shop, the overturning of old vehicles adorning his premises, the removal of wheels to distant parts and casting them down the Hannacroix bank, and later still, on election night, to the removal of hives of bees from the apiary on Snider Hill and carrying the same, five in number, some 200 yards up the road and depositing them over a stone wall in a bed of dead leaves, where they would not be readily seen. This work was attempted on Hallowe'en night, but the owner being disturbed in his slumbers, the perpetrators fled in fright lest they be detected, but on election night they accomplished their purpose and made off with their booty. What strenuous effort and sacrifice of sleep and comfort it required to secure a little mischievous fun, to say nothing of the many lance thrusts they received from the innocent honey-bee. There was evidence that they had a hot time of it as they went on with their nefarious work, ruthlessly disturbing the homes of the innocent honey-bee and causing thousands of them to die. They went to bed that morning nursing swollen heads and smarting fingers, the just reward of their deviltry.

To accomplish their job they improvised a hive-carrier out of some rails, but as they got along under the Greening apple-tree their carrier broke and let their bees fall to the ground. Thousands of them swarmed the air, and ugh! ugh! hi! hi! ugh! ugh! resounded on every side, driving them from their task. Here the director of the party met with a sad mishap. Whirling about in a rage as the little stingers beset him on all sides, he accidentally tore off one of his "cloven hoofs" and in the agony of his torture he was glad to escape and leave his "hoof" behind. Now the trail of his meddlesome presence can easily be traced by reason of his stump footprints.

With the bees subsiding under the chilling effect of the night air, the boys returned to work and succeeded in reaching their destination and then depositing the hives over the stone wall. Here another mishap occurred. One hive was divisible, consisting of two stories. In placing it over the wall the hive came apart and the brood-chamber landed down among the leaves bottom side up and with all the brood-frames displaced. This great disturbance of the bees again aroused their anger and they swarmed up about the heads of the miscreants peppering them with hot shot in righteous vengeance for the outrage on the sanctity of their home. Thus a lot of fun was enjoyed, but they paid dear for their whistle.

The sequence of this exploit was not as enjoyable to the victim as to the perpetrators, notwithstanding their merited punishment. After discovering by the merest accident where the hives had been deposited, he had a job of it to return them to their old locations and to get them rearranged in their normal situations. It was like the tug of war to lug the hives back single-handed and unaided, and then to clean the brood-nest of each of the dead leaves imbedded therein and to readjust them. There was no fun in it, but with proper care there were no stings. Perseverance and perspiration did the work, and finally it was accomplished. It took just 4 hours to restore and readjust the hives of bees to their old location.

These hives of bees were some of the best of the apiary of 32 colonies. Each possessed a young queen and from 10,000 to 20,000 bees. They had been fed up for winter and were in prime condition for passing the critical period of their existence. When they were restored to their summer stands they were very much weakened, showing that many thousands of bees had perished by this wanton marauding. It may have been jolly fun for the boys, but it can be easily seen that it was no joking matter for the bee-keeper.

It was a satisfaction to the victim to know that the perpetrators did not have the pleasure of seeing him tugging along with the heavy hives with the drops of perspiration flow-

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ing from his cheerless brow. Probably they chuckle with delight as they realize the arduous task they arranged for their friend, and they slap each other on the back and exclaim with glee, "That was a bully job!"

After completing their work on their return homeward, they finished up by tearing from a tree by the roadside one of the forbid notices posted by their friend. This act verified the suspicion that the work they had accomplished was not all a Hallowe'en pleasantry, but partook more of the spirit of retaliation for the interest and activity of the ringleader and organizer of the Anti-Hunters. Thus he, though no more responsible than others for the anti-hunting movement, gets his fingers scorched for pulling their chestnuts out of the fire while they go scot free from any annoyance. Well, for the satisfaction of the offenders, it may be noted that the patient takes his medicine all right, and he makes no complaint and he thinks he is convalescent, though the prescription was rather a drastic one.

Following the incident here related, an interesting feature transpired. It was interesting to note the quizzing look in the eyes of each of the perpetrators as the victim casually met them and scanned their countenances, their wandering gaze seeking to discern whether any irate emotion possessed his soul because of his recent unique experience. Guilty consciences need no accusing.

Bees and the Pure Food Law.

A friend sends a newspaper clipping from the Des Moines Sun, of Oct. 18, headed, "WISE BEES: They preserve their honey with formaline, and food law authorities can't punish them," which reads as follows:

H. R. Wright, Iowa's State food and dairy commissioner, who was commanded by the last legislature to arrest and punish all adulterators of foods, has been baffled.

Mr. Wright has just discovered by a recent analysis of pure farm honey a trace of "formaline," which is a preservative forbidden by the Iowa law.

An investigation showed that the adulteration was by the bees themselves.

Milkmen throughout the State who have used formaline have been punished, but when it comes to the prosecution of bees, the State officer admits he is "stung."

In the meanwhile the scientific folks are asking if the bees were wise to the fact that formaline is a preservative, and gathered it from some plant for that reason.

All of which is very interesting and instructive were it not that it lacks the one necessary element of truth, for there is no truth in the statement that honey contains formaline put in by the bees or any one else. The likelihood is that Commissioner Wright will have his first intimation of the matter upon seeing the item in print. It is well known that honey contains formic acid, and some ambitious reporter owing to the "form" of the first syllable in each word has got the two words mixed. The bees have no notion of violating the Iowa pure food law.

A Good Pennsylvania Report.

We have received the following from Fred W. Lidstone, of Scranton, Pa.:

EDITOR YORK:— Enclosed you will find a clipping published in the Scranton Times, of October 16. It is certainly of interest to the fraternity to learn of the crops produced in Pennsylvania. I have read what Mr. Dadant says concerning "locating an apiary." If this story is true, the best place to locate is Pennsylvania.

Before congratulating Mr. Coons it might be well to obtain his report for the season of 1908, inasmuch as it might add materially to his defense. FRED W. LIDSTONE.

Scranton, Pa.

The clipping referred to in the foregoing, reads as follows:

A news dispatch from Coudersport, the capital of County of Potter, says:

"R. L. Coons, accompanied by his son, left for New York Wednesday noon, where Mr. Coons will arrange the sale of his 1908 honey product. Mr. Coons is one of the largest producers of honey in the United States, as well as one of the most successful handlers of bees. A day or two ago he shipped a carload of superior quality of red raspberry honey to New York city. The car contained 30,000 pounds, or 15 tons, which represents what Mr. Coons has produced the past season from 180 colonies of bees. He has a single colony that has produced as much as $15 worth of honey in a season, and one colony that has produced 300 pounds. He expects his carload to increase materially his capacity for production next year by the addition of many more colonies of bees. He understands the bee-business thoroughly, and since being in Potter county has had only one swarm leave him when swarming, and get away where he was unable to find them."

Following the suggestion of Mr. Lidstone, we wrote to Mr. Coons, who responded as follows:

GEORGE W. YORK & CO.—

In answer to yours of October 29, I would say that the item in question is in the main correct. I shipped 30,000 pounds of honey to New York this fall from 184 colonies of bees when the honey-flow opened. I also made about 50 colonies increase.

Instead of $15 worth of honey from one colony, the item should have been $45 worth, all in one-pound sections.

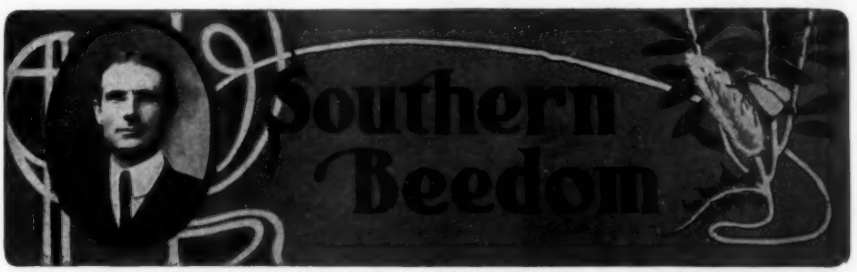
I find in looking over the record of my colonies that my 10 best colonies produced a total of 2731 pounds of honey in one-pound sections the past sesaon.

I think that my success is mostly due to our hives and appliances, and original methods of handling bees, and not to my location, since other bee-keepers in this vicinity do not have more than ordinary success.

R. L. COONS.

Sweden Valley, Pa., Nov. 16.

Mr. Coons certainly made a record the past seson, so far as a large honey crop is concerned, in the State of Pennsylvania. No doubt our readers would be greatly pleased, and also benefited, if Mr. Coons would tell *just how* he and his bees managed to do it. It ought to be an interesting story.



Conducted by LOUIS H. SCHOLL, New Braunfels, Tex.

Beginning with Bees—A Texas Cyclone.

The October number of the American Bee Journal is at hand. To say that I eagerly read it from front to cover expresses it very mildly. Just to think what I've been missing for lo, these many years?

My experinece with bees dates back some 20 years, back to those barefooted, rabbit-hunting, boyhood days when I frailed the ripe peaches off the old orchard trees that sheltered those old box-gums of my father's. In fancy I still see them promiscuously scattered about, see the great masses of bees that invariably were "laying out" during the latter part of summer. Not merely because the weather was warm, but because there was no room for them within. Surely those were easy days for the bee-keeper and also the bees. To hive a few swarms in the spring and "knock out the heads" of the heaviest in the fall, take out what was deemed necessary to last till next season, was the usual mode of procedure. Sometimes the bees would build great slabs of comb on the outside on the underside of a projecting cover. What a paradise such a country would be now with such up-to-date methods as we now have.

My grandfather was one of the pioneer settlers, coming from Iowa when my father was 5 years old. That was nearly 60 years ago. He also kept bees then, mostly in log-gums, lumber being very high, and hauled from the mills with ox-wagons over 100 miles. He was known as the pioneer bee-keeper, sometimes having 100 or more colonies. There was little or no market for honey then, but old settlers say that there was never a meal served at his house that there was not honey on the table. So you see that it is only natural that I take to the bees as a duck takes to the mill-pond.

Some 10 years ago, having arrived at the very mature (?) age of 18, feeling entirely master of the situation, I decided that I could paddle my own canoe. That is, with the meager help of a certain blue-eyed maiden that lived "just over the way." Among the necessary equipment of the aforesaid canoe I considered a colony of bees. Not a bad investment. A friend agreed to supply the same for the sum of $4—old, rickety box-hive, bees and all—for which I paid with lawful coin.

Years rolled by as years are wont to do. I was too busy to pay attention to my bees. Occasionally I would stand by the side of a hive and watch the bees go and come for a few minutes, then lift it gently to see if it was "getting rich," which much-desired condition would generally materialize in early fall. Then the tops would be pried off with an ax, the honey cut out down to the cross sticks, the top nailed down, and it was never molested again till next season. And so it would have continued probably till this day, had I not chanced to see some patent hives at the home of a friend. These contained pure golden Italians, the first I had ever seen. My friend noticing my apparent interest in them, lifted a cover, took out frame after frame, showing me the beautiful yellow queen, and her thousands of yellow followers. This little kindness, a trifle within itself, was the real beginning of my bee-keeping, for since then the fever has never left me, and promises to be a lifelong affliction. This was some 2 years ago, and resulted in my

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soon being the proud possessor of 3 of those colonies of banded beauties. Last season they did exceptionally well, increasing from 3 to 10; I also let 2 or 3 swarms escape to the woods. I also got 400 pounds of very fine honey from the 10, some of the first swarms storing more surplus than the parent colonies, one sending out on the 28th day, a fine swarm.

All went well. All hives were very heavy at the end of the season. All working busily till November. All wintered well, but a late cold spring and constant rains necessitated some feeding, which was attended to promptly, and soon every colony became very populous, and it was very apparent that they were only waiting for fair weather to get busy. I was all in readiness for this. A long row of new, empty, freshly-painted hives, with sheets of foundation stood waiting for new swarms, one of which had already come out, but alas, "Man proposes, but God disposes." Thunderstorms and floods became almost daily occurrence, flowers were blooming profusely, sweet scented alfalfa fields on every hand. Oh, how I wished for "that good old summer time."

Sunday, May 10, was warm and pleasant. I lay on the bank of a ravine in the shade of a persimmon grove, watching the countless numbers of yellow toilers humming busily among the white, bell-shaped blossoms. I lay there building "Castles in Spain," but happily ignorant of what the near future had in store for me. Night came, also a thunderstorm. Monday dawned bright and clear, a perfect day; my hope rose accordingly. Perhaps after all we would have some fine weather; but not so. Tuesday dawned dark and threatening, great heavy clouds hurrying overhead urged along by a strong south wind. These became thicker and heavier till about 2 o'clock p. m., when the muffled rumble of the thunder far to the southwest betokened a coming storm, and at once put a damper on my newborn hopes. I was in the field trying to save my first cutting of alfalfa, and 5 or 6 tons of such hay is no small item to the average farmer. Therefore that thundercloud had to "show me" before I would quit work. This it proceeded to do with a vengeance, and when the rain began falling so thick that I could hardly see, I cast one sad "Maud Muller" look at that 5-acre hayfield, climbed into my wagon, turned a very unwilling pair of mules' heads square in the face of the wind and rain, and pulled for wife's house a half-mile away.

To unharness, and change my wet clothes for dry ones, was only the work of a few minutes. It was still raining with deafening thunder, but I paid little attention to it. I picked up "Langstroth on the Honey-Bee," and was soon lost in its pages. I had read only a short time—some 20 or 30 minutes, I suppose—when I suddenly became concious of a profound stillness. It was still raining hard, but the wind that hitherto had been dashing the rain in sheets against the window panes was ominously still. I had but little time for conjecture, for almost as I became aware of these facts, a gale struck the house from the east, then suddenly veered to the west. Then came an awful roar. Windows and doors were crashed in, the air was filled with gravel, flying timber, etc., and I instantly realized that I was in the midst of a Texas cyclone. Two little children playing on the floor ran screaming into an adjoining room. I quickly followed, not wishing to become separated from them. I caught them, wrapped a strong arm around either, and calmly waited for the worst, but in a few seconds it ceased as suddenly as it came. Meanwhile my wife came into the room with the baby cooing serenely despite the fact that both were drenched and daubed with mud and dirt. Our house was left standing with only windows and doors blown out, books and furniture were scattered and overturned. I stepped out into the yard; fences were gone, large shade trees, oaks and elms, were split and twisted off like so many weeds; lumber and debris of all kinds was scattered everywhere.

Almost the first thing I noticed was that I didn't have a single bee-hive left. The shady elm that stood in their midst was a shapeless mass of foliage; pieces of comb and their splintered hives were strewn everywhere, while the ground was literally covered with dead and half-drowned bees. As the rain was still falling these were washed and drowned by thousands.

To the south I could see the once nice house and barn of my nearest neighbor, now almost totally destroyed. One little fellow sitting on the back porch churning was blown 50 yards and dropped unhurt to the ground. To the north there were 2 neighbors living very close together. One house was badly wrecked: the other entirely swept away, being blown into a raging creek, and contents washed away, but luckily the family were at a neighbor's only a short distance away, but entirely out of the storm's path, which was from 50 to 300 yards in width.

The next day while clearing up wreckage, I came across a super upside down, wet and soggy, but containing about ½ gallon of bees. The super frames being intact, I picked up a partly wrecked hive-body, shook the water from several frames of brood-comb lying about, placed these in the body, and put the super on top, doing this more for a place for the bees to congregate than from any idea of saving them; but several days later, when I had gotten things straightened up a little, I noticed those bees were working in and out, apparently contented, and, as some were carrying in pollen, I decided to investigate, and found not only larvæ and sealed brood in the extracting frames of the super, but the very finest queen I had owned. The super being painted different I knew at once where it had come from. Fine weather followed, and I soon had a strong colony.

Not daunted at my loss, I purchased 8 colonies from my old-time friend. He also made me a present of a very fine colony. These I brought home the latter part of May. Those I bought I have divided to the very limit, breeding my own queens as per directions given in the Langstroth book, all being bred from my "storm queen," as I call her, and a very fine, pure, imported Italian direct from Italy, which arrived about June 1, having placed my order last fall.

With the 4 colonies of blacks that I had been keeping at my father's, which I have since requeened, I now have 32 colonies, all with beautiful, prolific, golden queens, which are now laying right on (Oct. 22) as if they never expected any winter. From the colony presented me which has not swarmed nor been divided, I have taken 150 pounds of comb honey, and it is in fine condition for winter.

I have just read Mr. Doolittle's method of queen-rearing, and, with the American Bee Journal and Gleanings, I intend to be master of the situation next season, provided no cyclones come this way. O. SAUNDERS.

Trenton, Tex., Oct. 22.

Foul Brood Work in Texas.

The great danger of spreading of bee-diseases, foul brood especially, requires that special precautions be made in due time at least to check the spread, if not entirely to eradicate these diseases. This is the aim of the Texas Bee-Keepers' Association, and strong efforts have been made for an annual appropriation from the legislature for this purpose. Five thousand dollars has been asked for this year to be used in two years, or $2,500 annually; part of which is for salary of a State inspector and the rest for traveling and other expenses. On account of the size of the Lone Star State, the traveling expenses will be quite an item. Hence it is apparent that such an appropriation is hardly ample.

I hope to be able to report further on this matter later. There are numerous letters of enquiry sent me that I can not reply to until further developments.

Regarding Letters of Inquiry.

It should be remembered that I am not "an information bureau," and can not spend my entire time writing letters in reply to enquiries about locations in Texas, where to buy bees, and a thousand other questions of the same nature. Besides, I do not think it fair for me to neglect *my* business and hunt a "nest" for others, so all they need to do is to jump into it. I was not helped that way when I started, but had to hunt my own nest. If I were in the real estate business it would be different, but I receive annually several hundred letters, many without return postage stamps even, and I can not continue to answer them. If I were in a position to do so, it would, of course, be a pleasure to me. All other letters are highly welcomed, however.

A "Trick" on Robber-Bees.

A. H. Knolle, of Hondo, Tex., gives me the following plan in a recent letter:

"I note what you say about robber-bees in fall, and I will give you my plan, although you likely know it. If the bees are not work-

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ing, and are inclined to rob, just set out a few hive bodies of honey and get them started on it on one side of the apiary, then have 6 men in all, and as soon as the bees get started on the honey well, go to extracting, and as fast as you have a few empty bodies set them out for the bees to clean. If the bees get a little ahead set out a few more bodies of honey, but 6 men can keep 200 colonies of bees busy. If it is late in the fall or winter, and you want to heat the honey, stack up about 50 or 100 bodies in the honey-house, have a sheet-iron stove good and hot for about 6 or 8 hours, and then go to extracting, which we generally do from 3 o'clock in the afternoon until perhaps 11 at night."

A Remarkable Overflow.

Last May I experienced the most remarkable overflow on record, I feel sure. The apiary in question was located in a valley near a little ravine, and was 100 yards from a little gully, which was hardly noticeable. One late afternoon a fearful rain fell, and the water came up in the apiary and covered all the bottom boxes, or brood-chambers, or over half of the colonies. At this time a heavy honey-flow was on, and the hives full of honey. The flood came on Saturday afternoon. I knew that the bees had been flooded, but never went to see about them until Monday morning, and to my astonishment I found all in pretty good condition. There had been only about 5 percent of the brood killed, and I saw no indication that any honey was gone, although Sunday was not a day for bees to gather honey. Many of the hives had been under water to 3 inches up on the super. As good luck would have it, all the covers were bad fitting, which gave the bees plenty of air and means of escape, which saved the apiary. The water stayed up an hour. One hive was completely washed out of the yard and turned over, yet suffered very little damage. I attributed the escape with so little injury to the fact that the water could not enter the cells, or did not. I am not afraid of a wash-out now, and the destruction of the bees, if they have a way of escape through the top of the hive, and something to climb to if the hives are stationary so that they will not wash away.

Bartlett, Tex. T. P. Robinson.

Moving Bees Short Distances, Etc.

I should like to have Mr. Scholl or some other practical apiarist here in the South, tell me the best way and time to move an apiary of 60 colonies a distance of 200 yards, with the least trouble and loss of bees returning to the old stand. This is an out-apiary some 14 miles away.

Pollen and Honey in January.

This so far has been a very dry as well as warm, open winter. There have been but a very few days that the bees have not been on the wing and gathered more or less pollen, with perhaps a scanty supply of honey. Jan. 8 they were gathering from two different sources—mountain cedar and mistletoe.

Bees in the Best Condition.

The writer has never seen bees in the 18 years he has lived in this locality (Lampasas County, Tex.) in better condition than at the present time. They are moderately strong in bees, and extra-well supplied with stores. This is the result of the long and steady honey-flow from broom-weed in the late fall and early winter, which lasted, in all, over 2 months. The quality of the honey is not the best, but it is "legal tender" in a poor year for honey of a better grade, like the past season has been here.

Skunks Troubling the Bees.

The skunks have been troubling the bees of one of my out-yards considerably the past month or two. I told the owner of the ranch about it, and he said:

"I never knew before that skunks in any way bothered bees. Although I have heard my little dog out where the bees are, barking for several nights, and had noticed the strong odor of the skunk more than once, I never thought of his skunk-ship depredating on the bees. I shall take my shotgun and go to the dog next time."

I have since learned that 3 of the little "varmints" have been killed on the spot, and there are still signs of others.

It's "Fun" to Hunt Bee-Trees.

We have been having "lots of fun" and a plenty of "wild" honey on our table, this winter. The past season has been a great year for swarms, and a great many swarms have gone to the woods, with the result that many "bee-trees" are to be found. We go to the ranchmen here who own large pastures that are used for grazing various stock, and say something like this:

"Mr. Brown, we should like to have permission to hunt wild bees in your pasture. We will use every precaution against danger from fire while hunting and cutting the trees, for we well know the seriousness of getting these large pastures on fire these dry times when the wind is blowing a gale."

Then nine out of ten will say, "Go ahead, Mr. Smith, all we ask is to be very *careful about fire.*"

Then we saddle our horses when the day promises to be fair and warm, get feed for them, dinner for ourselves, and get our "bee-hunting outfit," which consists of a bottle of sweetened water made with honey, some old pieces of empty honey-combs, several large lumps of "slum-gum" from the wax-extractor and the "bee-hunting" box, and we are off to the woods.

On reaching the spot we have reasons to believe wild bees are near, we tie or hitch the horse, select a clear place where no danger of fire to the owner of the pasture would be taken, build a small fire, lay on a lump of the "slumgum," put out the pieces of comb with sweetened water in them from the bottle. Don't allow the "slumgum" to blaze and burn up, but just keep it smoldering along to make all the smoke and scent possible. If bees are near they will soon be coming thick and fast, and will find the combs of sweetened water, and we will soon have a line started, possibly several of them, and by moving up the bait-combs on the line they can soon be lined to the tree or cave, in which they have their home. In this way we have found a number of trees this winter. We cut 2 very "rich" trees New Year's Day. We transfer all the straight worker-comb to frames, and save all the bees. In this way we have stocked an apiary of over 30 colonies this fall and winter. I hunt bees for pleasure and not for profit. As a rule, it is not profitable.

Rescue, Tex. L. B. Smith.

Several of my yards have been moved at various times short distances varying from 50 to 300 yards and more, and after trying a great many ways, I have of late years used the following one as the best and easiest, in my mind at least. The moving can be done at *any time* when the weather is not too hot and sultry. The entrances of the hives are stuffed with moss, or green grass, or weeds are preferable, early in the morning, before any bees have gone out.

Wait until the day has warmed up, until 10 or 11 a. m., and then haul the colonies to the new stands, handling them roughly to stir them up well. When all are moved, use a smoker to smoke at the entrances, which are now all opened so only one bee can pass at a time, by pulling the weeds slightly at one side of the entrance.

The bees are much stirred up and would rush out, but are kept from doing so by the smoke and the very small entrance. This causes them to come out with some difficulty. They notice their new location, and do not rush off to the old one, thus saving the usual loss of returning bees. The green grass or weeds will soon begin to wither and dry up, and is in due time removed by the bees, allowing them the full use of the entrance without further attention from the apiarist. It is the cheapest and most easily obtained at almost all times, here in the South, and when not dry, grass or moss works just as well. It is "just the thing" for such moving at out-yards, etc.

Send Questions either to the office of the American Bee Journal or to
DR. C. C. MILLER, Marengo, Ill.
Dr. Miller does *not* answer Questions by mail.

Bee-Spaces in Hives—Color of Italian Queens.

I began last spring with one colony in a regular dovetailed hive, increased to 5 colonies, and got 100 pounds surplus, which, for a beginner, I think is good enough to blow about. But I guess "location" counts for a great deal. The hay meadows are thick with dandelion. The railroad right of way, ¼-mile from my colonies, is a jungle of sweet clover, and I have 40 acres of alfalfa. My experience, however, is that alfalfa is *second* to sweet clover, or else this year was an exception. The sweet clover just hummed with the bees all summer, while very few were seen on the alfalfa, though some of it went to seed. I have some troubles. That is why I write the "Trouble-mender." I got along making nuclei, and successfully introduced a queen. But I killed bees and was *awfully* bothered with propolis. I killed bees in putting on supers and covers, and, in taking off a top super, I tore up parts of sections in the lower super, and some brood-frames were stuck fast to the section-holders of the lower (or first) super, and lifted up with it. I don't think my hives are properly bee-spaced, or else our dry climate has shrunk them.

1. As I understand it, a square laid across a hive should have a ⅜-inch space left between it and the top of the frames. Is that right?

2. Should there also be a ⅜-inch space *above* the tops of the sections in a super? If not, how can I prevent the sections being stuck fast to the section-holder above?

3. If there should be a bee-space above the sections in a super I have been thinking I could remedy that in my supers by using T-tins, as they would eliminate the section-holder bottom (¼-inch thick); but how about the section-holder ends? Without them four 4¼ x 4¼ sections won't reach across the super by an inch, unless the T-tins are made of sheet-iron, and take up some space, and if they do take up space and crowd the bottoms of the sections apart, isn't there a space left between the tops for bees to daub propolis in?

4. How high up between the sections do your T-tins come? and don't you have to saw a place for them in the separators?

5. I am told that "the color of a queen has nothing to do with the bees she will rear;" that "pure Italian queens may be yellow, leather-colored, or jet black, but their bees will be yellow." Is this so?

6. My nearest bee-keeping neighbor is 1¼ miles. If I stock up with Italians, is there much danger of my queens being fertilized

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by his black drones? I use full sheets of foundation, and have very few drones. He uses only starters, and I saw whole frames in his hives that were built out solid with drone-comb, except 2 inches where the starter was. He had 6 colonies, and got no surplus. They swarmed as soon as they got a half-gallon of bees in a hive, and I don't want any of his stock, but would like to rear most of my own queens. Two of those I reared were larger, and better layers than the one I bought. NEBRASKA.

ANSWERS.—Location or no location, you have a right to brag of your success, especially if all 5 colonies are strong for winter.

1. One-fourth inch is the better space. But shrinkage may bring ⅜ down to ¼. With ⅜ too much bur-comb is built in.

2. In some way a bee-space must be provided between any 2 stories. There may be a space at the lower part of each story, or a half-space at both the bottom and top of each story, but the usual way is to have a space at the top. The hive must furnish a bee-space at the top, and each super the same. Without such space at the top of the super you'll have trouble galore with glue.

3. You can easily make the length of the super all right for T-tins by tacking a block or board in one end, or a thinner board in each end, leaving the inside length of the super 17⅜ inches. You wouldn't like sheet-iron T-tins to fill up the space.

4. Some of my T-tins are ⅜ and some ½ inch high. Either does. No place is sawed in the separator, which rests directly on the T-tins. It would be bad to have the separator come down lower.

5 That's not so very far off from the truth. Some of the best Italian queens are quite dark, although their workers are yellow.

6. The probability is that your neighbor's drones will be obliging enough to meet most of your queens. Can't you get him to change to Italian blood?

Eight and Ten Frame Hives.

I would like to know when to use an 8 and a 10 frame hive, and what is the advantage of each? WISCONSIN.

ANSWER.—Perhaps no one thinks of using anything less than a 10-frame hive for extracted honey, and some even want something larger. The question as to the choice of the two relates only to comb-honey. If you are going to give only ordinary care to your bees, a 10-frame hive is the safe thing. More room for winter stores, hence less danger of starving in winter, and more particularly of starving in spring. But some who give fullest attention to their bees prefer an 8-frame hive, partly because they want something smaller, and partly because they want something larger than a 10-frame hive. Early in the season, when bees are building up, a queen may need more than 10 frames, and then a second story can be given to the smaller hive, making 16 frames. Then when the harvest comes, one story can be taken away, and only 8 frames left for the queen, the rest of the room being in supers.

Rearing Queens—Italianizing.

I commenced July 1, by purchasing a colony of Italians; a few days later a small after-swarms of hybrids; then I caught a runaway black swarm; and by dividing and buying queens, I now have 5 good colonies—3 pure-bred and 2 hybrids.

I fed 4 of them some in September, and they are all now well stocked for winter. The fifth was started July 15, with 2 frames of brood and honey, and about a gallon and a half of bees. With no feeding it filled the 6 other frames, having full foundation starters, and stored 16 sections in the super. These were not fed because they seemed to be working strong. This is the colony that I am anxious about. I never knowingly saw the leather-colored Italians, but think this is that kind. I would like to requeen from this colony, but there are so many black bees about me that I fear I shall not get many pure-bred queens.

1. What percent of pure-breds could be counted on if I place my bees a mile from other bees?

2. How would it do to get some queen-breeder to take my queen and pay me in her progeny?

3. How many untested queens from her eggs should I have for the queen?

It was so dry after I started this colony, and so little honey-flow, that I think she is a great queen.

4. I have a hybrid colony that did not work well. Should I put in another queen early in the spring, or wait until after the honey flow? Which will probably pay best? MISSOURI.

ANSWERS.—1. Possibly 25 percent, possibly 5 percent.

2. That would almost certainly give you more pure matings.

3. That's altogether as you can arrange with the breeder. He might set a very high or a very low value on your queen, which would make a wide difference.

4. Likely it will pay best not to make the change till the flow is well along.

How Many Colonies for a Certain Field?

From reading the bee-papers and text-books on bee-culture, I know it is no easy matter to say how many colonies of bees a location will support, but I would like to have you give your opinion o. the following.

Could I keep 75 colonies *or more*, on a range that furnished an abundance of early pollen from willow, hazel-brush, elms, and other sources, followed by fruit-bloom and dandelions; about 40 acres of alsike clover, grown for seed; white clover, which springs up abundantly along roadsides and in all pasture lands; and lastly, if all the basswood scattered through the timber here were collected into one lot, a conservative estimate would put it at from 140 to 160 acres of a fair stand of timber? We also have enough fall forage to keep bees busy, and some seasons to gather some surplus. All land is occupied, the farms averaging about 100 acres here, and all have a fair-sized upland pasture with the grazing area being increased yearly.

Judging from the above, how do our locations compare in white clover? I understand you depend upon this source alone for your surplus. MINNESOTA.

ANSWER.—If there are no other bees within 2 or 3 miles of you, it ought to be a safe guess to say you could keep 100 colonies or more. Hard to say how your white clover compares with mine. You have white clover in all pastures, but how much of the land is occupied with pasture? Here dairying is the chief interest of all the farmers with scarcely an exception. "Elgin" butter, you probably know, looms large in the market, and more Elgin butter is made here than at Elgin. But even if I have more clover than you, I'd be glad to swap the extra amount for your basswood, and pay you something to boot.

Disagreeable Hive-Odor.

I have just read an article on page 306, "A Buckwheat Story." During the latter part of this season I had very much the same experience as the "farmer bee-keeper." We have no buckwheat in this country, and no disease of any kind that I know of. My bees are all in very good condition. We noticed a strong, disagreeable odor coming from our bee-hives, especially in the afternoon and evening. My wife kept insisting that something was wrong. "Foul brood, more than likely." I examined hive after hive and opened cells in all, but conditions were always the same. The hives and combs were all clean, brood in a healthy condition, and plenty of it.

I finally gave up my search for the cause, believing that it was due to the odor of the honey, which was quite dark, although to hold a comb close to the nostrils nothing disagreeable could be detected. It puzzled me "a right smart." I have 3-banded Italians. Can you give any light upon the cause. LOUISIANA.

ANSWERS.—Your "believe" in the case is about right. There are times when certain kinds of honey give out a very disagreeable odor that pervades the air of the apiary, although, as you say, you cannot locate it easily. Fortunately it does no harm, and doesn't last long. A worse affliction is the carrion plant, with which I've had some trouble—a sort of fungus or toadstool that smells like a dead animal, and is not very easy to find.

Making Increase of Colonies.

1. I asked some questions last spring, page 152. I told then how Mr. Doolittle bothered me. Now, I don't know as you know it, but you have bothered me, too. This is what bothers me: I read what Mr. Alexander said in Gleanings in Bee Culture, page 423, and I thought I would make my increase that way, until I read what you said in the American Bee Journal, page 85, and then I decided to ask you how I would best make increase, and in your answer you said, "One way is to put all brood into an upper story over an excluder, leaving the queen below, then a week or 10 days later set the upper story on a new stand, giving it a queen or ripe queen-cell." In what way does this differ from Mr. Alexander's way? And didn't you say, page 85, fourth answer, "No, not for me, and probably not for one in a thousand in the North?" If my bees winter well this winter, I believe I will try one colony Mr. Alexander's way.

2. In the November number, page 344, you say, "drum out a swarm, hive it in a new hive, and set it on the old stand, changing No. 1 to another old colony, No. 2." I find this is practically the same way as given in "Langstroth on the Honey-Bee," page 242, by Dadant & Son. Would this method give as good queens as those of any other method? Of course I would use the brood from my best queen. MAINE.

ANSWERS.—1. Evidently things have become mixed, and I'm the culprit to blame for the mixing. Let me try to straighten it out. Mr. Alexander gave as a plan to increase the crop to divide each colony before the harvest. That I do not consider a good way to increase the crop "for me nor for one in a thousand in the North," although the plan he gives for making increase is good. If you want to try that plan of increase of bees, you will find it works all right; but if you expect it greatly to increase your crop of honey, as recommended by Mr. Alexander, you will probably be greatly disappointed. As I think I stated, Mr. Alexander depends mainly upon buckwheat, and he can double his colonies and have 2 full colonies from each to work on buckwheat, so the plan is all right for him or for bee-keepers in the South who have late harvests; for me, and almost certainly for you, it's another story. But the plan of increase is all right.

2. The plan mentioned should give queens of best quality if worked when there is a good yield of honey, for the cells are started and the queens reared in a full colony.

Caucasian Bees—Requeening.

I see on page 338 an article on Caucasian bees, by J. J. Wilder, of Georgia. He says that they winter well. That might well be there, but not in this latiude.

1. Do Caucasians winter well in the North?

2. Do they resist the moth as well as the Italians?

3. Are they inclined to fasten their combs together?

4. Which would you advise, requeening with Italians or Caucasians?

I have now 8 colonies of common black bees. I wish to requeen at least some in the spring. My average this year was 24 sections, although I had one colony which stored 60. This was my second season. I started with 3 colonies and have lost 3. I have a friend who purchased a 3-frame nucleus last spring, and it built up on foundation and stored some surplus. So I am inclined toward Italians.

I like the bees very well. I am 17 years old. Perhaps I can make something of a bee-keeper of myself. NEW YORK.

ANSWER.—I'll not attempt to answer your questions categorically, chiefly because I don't know enough. I have had no personal experience with Caucasians, and only know about them from the reports of others. These reports are so contradictory, and some of them so unsatisfactory that I don't care to introduce any of the blood until there seems to be something more firmly established as to their general character. If I had black bees as you have, I should get pure Italian blood, breeding always from the best, and trying to keep the stock pure. I didn't do that myself, but that's what I would do if I had it to do over again.

Repressing Swarming—Alternating Hives.

1. How can I repress swarming to the best advantage in producing comb honey?

2. Would it pay for me to change queens in the spring to get out the swarming blood?

3. If the queen of a colony has swarming blood, will all swarms going out from that colony be of the same nature?

4. I am an amateur at the bee-business,

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ing, and are inclined to rob, just set out a few hive bodies of honey and get them started on it on one side of the apiary, then have 6 men in all, and as soon as the bees get started on the honey well, go to extracting, and as fast as you have a few empty bodies set them out for the bees to clean. If the bees get a little ahead set out a few more bodies of honey, but 6 men can keep 200 colonies of bees busy. If it is late in the fall or winter, and you want to heat the honey, stack up about 50 or 100 bodies in the honey-house, have a sheet-iron stove good and hot for about 6 or 8 hours, and then go to extracting, which we generally do from 3 o'clock in the afternoon until perhaps 11 at night."

A Remarkable Overflow.

Last May I experienced the most remarkable overflow on record, I feel sure. The apiary in question was located in a valley near a little ravine, and was 100 yards from a little gully, which was hardly noticeable. One late afternoon a fearful rain fell, and the water came up in the apiary and covered all the bottom boxes, or brood-chambers, or over half of the colonies. At this time a heavy honey-flow was on, and the hives full of honey. The flood came on Saturday afternoon. I knew that the bees had been flooded, but never went to see about them until Monday morning, and to my astonishment I found all in pretty good condition. There had been only about 5 percent of the brood killed, and I saw no indication that any honey was gone, although Sunday was not a day for bees to gather honey. Many of the hives had been under water to 3 inches up on the super. As good luck would have it, all the covers were bad fitting, which gave the bees plenty of air and means of escape, which saved the apiary. The water stayed up an hour. One hive was completely washed out of the yard and turned over, yet suffered very little damage. I attributed the escape with so little injury to the fact that the water could not enter the cells, or did not. I am not afraid of a wash-out now, and the destruction of the bees, if they have a way of escape through the top of the hive, and something to climb to if the hives are stationary so that they will not wash away.

Bartlett, Tex. T. P. Robinson.

Moving Bees Short Distances, Etc.

I should like to have Mr. Scholl or some other practical apiarist here in the South, tell me the best way and time to move an apiary of 60 colonies a distance of 200 yards, with the least trouble and loss of bees returning to the old stand. This is an out-apiary some 14 miles away.

Pollen and Honey in January.

This so far has been a very dry as well as warm, open winter. There have been but a very few days that the bees have not been on the wing and gathered more or less pollen, with perhaps a scanty supply of honey. Jan. 8 they were gathering from two different sources—mountain cedar and mistletoe.

Bees in the Best Condition.

The writer has never seen bees in the 18 years he has lived in this locality (Lampasas County, Tex.) in better condition than at the present time. They are moderately strong in bees, and extra-well supplied with stores. This is the result of the long and steady honey-flow from broom-weed in the late fall and early winter, which lasted, in all, over 2 months. The quality of the honey is not the best, but it is "legal tender" in a poor year for honey of a better grade, like the past season has been here.

Skunks Troubling the Bees.

The skunks have been troubling the bees of one of my out-yards considerably the past month or two. I told the owner of the ranch about it, and he said:

"I never knew before that skunks in any way bothered bees. Although I have heard my little dog out where the bees are, barking for several nights, and had noticed the strong odor of the skunk more than once, I never thought of his skunk-ship depredating on the bees. I shall take my shotgun and go to the dog next time."

I have since learned that 3 of the little "varmints" have been killed on the spot, and there are still signs of others.

It's "Fun" to Hunt Bee-Trees.

We have been having "lots of fun" and a plenty of "wild" honey on our table, this winter. The past season has been a great year for swarms, and a great many swarms have gone to the woods, with the result that many "bee-trees" are to be found. We go to the ranchmen here who own large pastures that are used for grazing various stock, and say something like this:

"Mr. Brown, we should like to have permission to hunt wild bees in your pasture. We will use every precaution against danger from fire while hunting and cutting the trees, for we well know the seriousness of getting these large pastures on fire these dry times when the wind is blowing a gale."

Then nine out of ten will say, "Go ahead, Mr. Smith, all we ask is to be very *careful about fire.*"

Then we saddle our horses when the day promises to be fair and warm, get feed for them, dinner for ourselves, and get our "bee-hunting outfit," which consists of a bottle of sweetened water made with honey, some old pieces of empty honey-combs, several large lumps of "slum-gum" from the wax-extractor and the "bee-hunting" box, and we are off to the woods.

On reaching the spot we have reasons to believe wild bees are near, we tie or hitch the horse, select a clear place where no danger of fire to the owner of the pasture would be taken, build a small fire, lay on a lump of the "slumgum," put out the pieces of comb with sweetened water in them from the bottle. Don't allow the "slumgum" to blaze and burn up, but just keep it smoldering along to make all the smoke and scent possible. If bees are near they will soon be coming thick and fast, and will find the combs of sweetened water, and we will soon have a line started, possibly several of them, and by moving up the bait-combs on the line they can soon be lined to the tree or cave, in which they have their home. In this way we have found a number of trees this winter. We cut 2 very "rich" trees New Year's Day. We transfer all the straight worker-comb to frames, and save all the bees. In this way we have stocked an apiary of over 30 colonies this fall and winter. I hunt bees for pleasure and not for profit. As a rule, it is not profitable.

Rescue, Tex. L. B. Smith.

Several of my yards have been moved at various times short distances varying from 50 to 300 yards and more, and after trying a great many ways, I have of late years used the following one as the best and easiest, in my mind at least. The moving can be done at *any time* when the weather is not too hot and sultry. The entrances of the hives are stuffed with moss, or green grass, or weeds are preferable, early in the morning, before any bees have gone out.

Wait until the day has warmed up, until 10 or 11 a. m., and then haul the colonies to the new stands, handling them roughly to stir them up well. When all are moved, use a smoker to smoke at the entrances, which are now all opened so only one bee can pass at a time, by pulling the weeds slightly at one side of the entrance.

The bees are much stirred up and would rush out, but are kept from doing so by the smoke and the very small entrance. This causes them to come out with some difficulty. They notice their new location, and do not rush off to the old one, thus saving the usual loss of returning bees. The green grass or weeds will soon begin to wither and dry up, and is in due time removed by the bees, allowing them the full use of the entrance without further attention from the apiarist. It is the cheapest and most easily obtained at almost all times, here in the South, and when not dry, grass or moss works just as well. It is "just the thing" for such moving at out-yards, etc.

Send Questions either to the office of the American Bee Journal or to
DR. C. C. MILLER, Marengo, Ill.
Dr. Miller does *not* answer Questions by mail.

Bee-Spaces in Hives—Color of Italian Queens.

I began last spring with one colony in a regular dovetailed hive, increased to 5 colonies, and got 100 pounds surplus, which, for a beginner, I think is good enough to blow about. But I guess "location" counts for a great deal. The hay meadows are thick with dandelion. The railroad right of way, ¼-mile from my colonies, is a jungle of sweet clover, and I have 40 acres of alfalfa. My experience, however, is that alfalfa is *second* to sweet clover, or else this year was an exception. The sweet clover just hummed with the bees all summer, while very few were seen on the alfalfa, though some of it went to seed. I have some troubles. That is why I write the "Trouble-mender." I got along making nuclei, and successfully introduced a queen. But I killed bees and was *awfully* bothered with propolis. I killed bees in putting on supers and covers, and, in taking off a top super, I tore up parts of sections in the lower super, and some brood-frames were stuck fast to the section-holders of the lower (or first) super, and lifted up with it. I don't think my hives are properly bee-spaced, or else our dry climate has shrunk them.

1. As I understand it, a square laid across a hive should have a ⅜-inch space left between it and the top of the frames. Is that right?

2. Should there also be a ⅜-inch space *above* the tops of the sections in a super? If not, how can I prevent the sections being stuck fast to the section-holder above?

3. If there should be a bee-space above the sections in a super I have been thinking I could remedy that in my supers by using T-tins, as they would eliminate the section-holder bottom (¼-inch thick); but how about the section-holder ends? Without them four 4¼ x 4¼ sections won't reach across the super by an inch, unless the T-tins are made of sheet-iron, and take up some space, and if they do take up space and crowd the bottoms of the sections apart, isn't there a space left between the tops for bees to daub propolis in?

4. How high up between the sections do your T-tins come? and don't you have to saw a place for them in the separators?

5. I am told that "the color of a queen has nothing to do with the bees she will rear;" that "pure Italian queens may be yellow, leather-colored, or jet black, but their bees will be yellow." Is this so?

6. My nearest bee-keeping neighbor is 1¼ miles. If I stock up with Italians, is there much danger of my queens being fertilized

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by his black drones? I use full sheets of foundation, and have very few drones. He uses only starters, and I saw whole frames in his hives that were built out solid with drone-comb, except 2 inches where the starter was. He had 6 colonies, and got no surplus. They swarmed as soon as they got a half-gallon of bees in a hive, and I don't want any of his stock, but would like to rear most of my own queens. Two of those I reared were larger, and better layers than the one I bought. NEBRASKA.

ANSWERS.—Location or no location, you have a right to brag of your success, especially if all 5 colonies are strong for winter.

1. One-fourth inch is the better space. But shrinkage may bring ⅜ down to ¼. With ⅜ too much bur-comb is built in.

2. In some way a bee-space must be provided between any 2 stories. There may be a space at the lower part of each story, or a half-space at both the bottom and top of each story, but the usual way is to have a space at the top. The hive must furnish a bee-space at the top, and each super the same. Without such space at the top of the super you'll have trouble galore with glue.

3. You can easily make the length of the super all right for T-tins by tacking a block or board in one end, or a thinner board in each end, leaving the inside length of the super 17⅜ inches. You wouldn't like sheet-iron T-tins to fill up the space.

4. Some of my T-tins are ⅜ and some ½ inch high. Either does. No place is sawed in the separator, which rests directly on the T-tins. It would be bad to have the separator come down lower.

5 That's not so very far off from the truth. Some of the best Italian queens are quite dark, although their workers are yellow.

6. The probability is that your neighbor's drones will be obliging enough to meet most of your queens. Can't you get him to change to Italian blood?

Eight and Ten Frame Hives.

I would like to know when to use an 8 and a 10 frame hive, and what is the advantage of each? WISCONSIN.

ANSWER.—Perhaps no one thinks of using anything less than a 10-frame hive for extracted honey, and some even want something larger. The question as to the choice of the two relates only to comb-honey. If you are going to give only ordinary care to your bees, a 10-frame hive is the safe thing. More room for winter stores, hence less danger of starving in winter, and more particularly of starving in spring. But some who give fullest attention to their bees prefer an 8-frame hive, partly because they want something smaller, and partly because they want something larger than a 10-frame hive. Early in the season, when bees are building up, a queen may need more than 10 frames, and then a second story can be given to the smaller hive, making 16 frames. Then when the harvest comes, one story can be taken away, and only 8 frames left for the queen, the rest of the room being in supers.

Rearing Queens—Italianizing.

I commenced July 1, by purchasing a colony of Italians; a few days later a small after-swarms of hybrids; then I caught a runaway black swarm; and by dividing and buying queens, I now have 5 good colonies—3 pure-bred and 2 hybrids.

I fed 4 of them some in September, and they are all now well stocked for winter. The fifth was started July 15, with 2 frames of brood and honey, and about a gallon and a half of bees. With no feeding it filled the 6 other frames, having full foundation starters, and stored 16 sections in the super. These were not fed because they seemed to be working strong. This is the colony that I am anxious about. I never knowingly saw the leather-colored Italians, but think this is that kind. I would like to requeen from this colony, but there are so many black bees about me that I fear I shall not get many pure-bred queens.

1. What percent of pure-breds could be counted on if I place my bees a mile from other bees?

2. How would it do to get some queen-breeder to take my queen and pay me in her progeny?

3. How many untested queens from her eggs should I have for the queen?

It was so dry after I started this colony, and so little honey-flow, that I think she is a great queen.

4. I have a hybrid colony that did not work well. Should I put in another queen early in the spring, or wait until after the honey flow? Which will probably pay best? MISSOURI.

ANSWERS.—1. Possibly 25 percent, possibly 5 percent.

2. That would almost certainly give you more pure matings.

3. That's altogether as you can arrange with the breeder. He might set a very high or a very low value on your queen, which would make a wide difference.

4. Likely it will pay best not to make the change till the flow is well along.

How Many Colonies for a Certain Field?

From reading the bee-papers and text-books on bee-culture, I know it is no easy matter to say how many colonies of bees a location will support, but I would like to have you give your opinion on the following.

Could I keep 75 colonies *or more*, on a range that furnished an abundance of early pollen from willow, hazel-brush, elms, and other sources, followed by fruit-bloom and dandelions; about 40 acres of alsike clover, grown for seed; white clover, which springs up abundantly along roadsides and in all pasture lands; and lastly, if all the basswood scattered through the timber here were collected into one lot, a conservative estimate would put it at from 140 to 160 acres of a fair stand of timber? We also have enough fall forage to keep bees busy, and some seasons to gather some surplus. All land is occupied, the farms averaging about 100 acres here, and all have a fair-sized upland pasture with the grazing area being increased yearly.

Judging from the above, how do our locations compare in white clover? I understand you depend upon this source alone for your surplus. MINNESOTA.

ANSWER.—If there are no other bees within 2 or 3 miles of you, it ought to be a safe guess to say you could keep 100 colonies or more. Hard to say how your white clover compares with mine. You have white clover in all pastures, but how much of the land is occupied with pasture? Here dairying is the chief interest of all the farmers with scarcely an exception. "Elgin" butter, you probably know, looms large in the market, and more Elgin butter is made here than at Elgin. But even if I have more clover than you, I'd be glad to swap the extra amount for your basswood, and pay you something to boot.

Disagreeable Hive-Odor.

I have just read an article on page 306, "A Buckwheat Story." During the latter part of this season I had very much the same experience as the "farmer bee-keeper." We have no buckwheat in this country, and no disease of any kind that I know of. My bees are all in very good condition. We noticed a strong, disagreeable odor coming from our bee-hives, especially in the afternoon and evening. My wife kept insisting that something was wrong. "Foul brood, more than likely." I examined hive after hive and opened cells in all, but conditions were always the same. The hives and combs were all clean, brood in a healthy condition, and plenty of it.

I finally gave up my search for the cause, believing that it was due to the odor of the honey, which was quite dark, although to hold a comb close to the nostrils nothing disagreeable could be detected. It puzzled me "a right smart." I have 3-banded Italians. Can you give any light upon the cause. LOUISIANA.

ANSWERS.—Your "believe" in the case is about right. There are times when certain kinds of honey give out a very disagreeable odor that pervades the air of the apiary, although, as you say, you cannot locate it easily. Fortunately it does no harm, and doesn't last long. A worse affliction is the carrion plant, with which I've had some trouble—a sort of fungus or toadstool that smells like a dead animal, and is not very easy to find.

Making Increase of Colonies.

1. I asked some questions last spring, page 152. I told then how Mr. Doolittle bothered me. Now, I don't know as you know it, but you have bothered me, too. This is what bothers me: I read what Mr. Alexander said in Gleanings in Bee Culture, page 423, and I thought I would make my increase that way, until I read what you said in the American Bee Journal, page 85, and then I decided to ask you how I would best make increase, and in your answer you said, "One way is to put all brood into an upper story over an excluder, leaving the queen below, then a week or 10 days later set the upper story on a new stand, giving it a queen or ripe queen-cell." In what way does this differ from Mr. Alexander's way? And didn't you say, page 85, fourth answer, "No, not for me, and probably not for one in a thousand in the North?" If my bees winter well this winter, I believe I will try one colony Mr. Alexander's way.

2. In the November number, page 344, you say, "drum out a swarm, hive it in a new hive, and set it on the old stand, changing No. 1 to another old colony, No. 2." I find this is practically the same way as given in "Langstroth on the Honey-Bee," page 242, by Dadant & Son. Would this method give as good queens as those of any other method? Of course I would use the brood from my best queen. MAINE.

ANSWERS.—1. Evidently things have become mixed, and I'm the culprit to blame for the mixing. Let me try to straighten it out. Mr. Alexander gave as a plan to increase the crop to divide each colony before the harvest. That I do not consider a good way to increase the crop "for me nor for one in a thousand in the North," although the plan he gives for making increase is good. If you want to try that plan of increase of bees, you will find it works all right; but if you expect it greatly to increase your crop of honey, as recommended by Mr. Alexander, you will probably be greatly disappointed. As I think I stated, Mr. Alexander depends mainly upon buckwheat, and he can double his colonies and have 2 full colonies from each to work on buckwheat, so the plan is all right for him or for bee-keepers in the South who have late harvests; for me, and almost certainly for you, it's another story. But the plan of increase is all right.

2. The plan mentioned should give queens of best quality if worked when there is a good yield of honey, for the cells are started and the queens reared in a full colony.

Caucasian Bees—Requeening.

I see on page 338 an article on Caucasian bees, by J. J. Wilder, of Georgia. He says that they winter well. That might well be there, but not in this latiude.

1. Do Caucasians winter well in the North?

2. Do they resist the moth as well as the Italians?

3. Are they inclined to fasten their combs together?

4. Which would you advise, requeening with Italians or Caucasians?

I have now 8 colonies of common black bees. I wish to requeen at least some in the spring. My average this year was 24 sections, although I had one colony which stored 60. This was my second season. I started with 3 colonies and have lost 3. I have a friend who purchased a 3-frame nucleus last spring, and it built up on foundation and stored some surplus. So I am inclined toward Italians.

I like the bees very well. I am 17 years old. Perhaps I can make something of a bee-keeper of myself. NEW YORK.

ANSWER.—I'll not attempt to answer your questions categorically, chiefly because I don't know enough. I have had no personal experience with Caucasians, and only know about them from the reports of others. These reports are so contradictory, and some of them so unsatisfactory that I don't care to introduce any of the blood until there seems to be something more firmly established as to their general character. If I had black bees as you have, I should get pure Italian blood, breeding always from the best, and trying to keep the stock pure. I didn't do that myself, but that's what I would do if I had it to do over again.

Repressing Swarming—Alternating Hives.

1. How can I repress swarming to the best advantage in producing comb honey?

2. Would it pay for me to change queens in the spring to get out the swarming blood?

3. If the queen of a colony has swarming blood, will all swarms going out from that colony be of the same nature?

4. I am an amateur at the bee-business,

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having started about the middle of last summer with one colony of Italian bees, in a 10-frame alternating hive. I bought them just after they had swarmed, and they stored enough honey for their use this winter. About 11 o'clock on September 25, they swarmed again with a medium-sized swarm. I went over to our bee-supply dealer to get a hive and he had nothing left but a Massie hive, and said if I wanted to change it for an alternating hive in the spring, I could. Which would you advise me to choose for my hive?

5. I fed my late swarm of bees about 20 pounds of granulated sugar in as much water, with a Miller feeder. They gathered what little honey they could. Will that be sufficient to keep them in good trim this winter?

I have been taking the American Bee Journal and enjoy it immensely. I would not do without it, as it brings up so many good points of interest to bee-keepers. IOWA.

ANSWERS.—1. I don't know. I've been trying for some 40 years to find out what is the best way for me, and am still trying without having the question fully settled. Even if I knew the answer for myself, I might not know the answer for you. In "Forty Years Among the Bees" I've tried to give my whole method of procedure, but it would take pages of that to tell the story, and then, as I said, it might not hit your case.

2. Might be. W. Z. Hutchinson practised introducing each year young queens obtained from the South, and the plan was a success in preventing swarming. But the plan did not succeed with me, although when the young queen was reared in the colony itself that colony could pretty surely be counted on not to swarm. Still, I had exceptions.

On reading your question the second time, and especially reading the question following, I think you want to know whether by introducing new blood you may get bees less inclined to swarm. Yes, it is possible that your bees are unusually bad about swarming, and that you might get in new blood with less inclination that way.

3. The royal daughters of a queen are by no means sure to be just like their mother, but if the mother is badly given to swarming you may count on a general disposition that way among her daughters.

4. The great majority seem to prefer a 10-frame dovetailed hive, although some who can give very close attention to their bees prefer an 8-frame dovetailed hive.

5. Yes, but keep a sharp lookout next spring after brood-rearing begins, for then is the time when stores are used so rapidly that they may run out before you know it.

Transferring Bees from Boxes.

I have 2 colonies of bees caught in the woods last summer. They are at present in 2 cracker-boxes, wintering on the honey they stored up during the summer. I should like to get them into a frame-hive in the spring as early as possible. When is the best time, and what is the best way? CONNECTICUT.

ANSWER.—You would only lose by trying to make the change too early. Generally no one thinks of transferring from a box-hive to a frame-hive before the time of fruit-bloom. Latterly the plan preferred is to allow the bees to swarm, hiving the swarm in a proper hive, setting the hive on the old stand, and then 21 days after the issue of the swarm to break up the old hive, adding the bees in it to the swarm. By that time all the brood will be hatched out except perhaps a little drone-brood, and the old combs can be melted up.

Comb Honey Without Separators—Folding Sections—Wiring Foundation.

1. In producing comb honey, can the supers be used without the fences or partitions, or separators, between the rows of sections?

2. How should I manage the sections? Must they be wet before bending, or bent dry? I see a hand-machine advertised for bending them. Would you advise the use of one, or bend by hand?

3. Please expain how foundation is wired for brood-frames. Do you fill the entire frame? I enclose drawing to explain the way I saw some put in. It was fastened to the top-bar with wax. There was about ¾ of an inch left on each side and at the bottom, with the corners cut off. KENTUCKY.

ANSWERS.—1. If you are producing a few sections that you do not expect to ship, you may get along without separators of any kind. If they are to be packed in a shipping-case, separators are almost indispensable.

2. Sometimes sections can be put together all right without wetting; generally too many of them will break unless the joints are wet. If you have many sections to fold, you will find it better to have some kind of a section-press.

3. Quite commonly foundation is fastened in by 3 horizonal wires, although some prefer 5 vertical wooden splints. It costs less for foundation in the first place if the corners of the sheet be cut away in the way you sketch, but it is an extravagant way in the long run. The bees are sure to fill in the vacant spaces with altogether too much drone-comb, and you can hardly afford to keep so many drones. I never feel I can afford to keep so many drones. I never feel I can afford to have less foundation than to fill the entire frame.

Wind and Nectar-Secretion—Sowing Buckwheat—German Bee-Paper.

1. I have read in a farm paper that flowers do not yield nectar when there is a south or east wind. Is that true?

2. I have 6 colonies of bees, and intend to sow an acre of buckwheat for them so they can dig into it after clover bloom. What time should I sow it, and into what soil?

3. Is there a German bee-paper published either here or in foreign countries? MINNESOTA.

ANSWERS.—1. I don't think it is, although the direction of the wind may have some influence.

2. About the first of July is a good time. Buckwheat is not very particular, but will do better on fairly good soil.

3. No German bee-paper is published in this country, but a number across the water, among them Schweizerische Bienenzeitung, Praktischer Wegweiser, Leipweiser Bienenzeitung, Bienen-Vater, Deutsche Imker aus Boehmen.

Noises Over a Bee-Cellar.

1. If bees are put into a cellar under the kitchen, would the noises incident to the kitchen-work—running a washer, bringing in wood, constant walking, etc.—be a detriment to the bees, provided the hives were not jarred by any of these various operations? Or would a cellar under a parlor be better, where it would be quiet most of the time, with an occasional day or evening when there would be considerable noise above the bees, but no jarring of the hives? Or would the position beneath the living room where there is a piano be better than either of the others? MICHIGAN.

ANSWER.—I can not speak with entire positiveness; but I have never noted any bad results from noises overhead (although I never had anything very bad in that line), and never heard of it from others; so I don't believe you need take into account the matter of noise, but put your bees in the place that gives you the best temperature and ventilation, providing there is any difference.

Transferring Bees—T-Super.

1. I have bees in a box. I wish to put them in hives to drive out a swarm next spring. Then in 21 days I want to take the box for another swarm. How far will I have to take the first from the old stand? My plan is to smoke and then drive them by knocking on the box.

2. What is the difference between the T-super I read about and others? I bought some bees in Root hives. The supers have 24 sections with fences between them. The supers of that size will fit any hive which I make myself. They are the size of the ones I see advertised. Please give price and where to buy the T-super, and any information you can. I have never produced comb honey. KENTUCKY.

ANSWERS.—1. The distance is not important, although it makes a difference whether a hive stands alone or is surrounded by others. If other colonies are near, 6 feet is far enough to move it; if it stands alone, a rod is better.

2. The chief difference between the T-super and other supers is that in the T-super the sections are supported by supports of tin having a horizontal lower part on the center of which stands an upright part, making it in the form of an inverted T. These T-tins are loose, and make a very strong support which at the same time takes up almost no room. You will find the T-tins advertised in supply catalogs at a little more than a cent apiece (it takes 3 for a super), but strange to say the supers themselves do not appear. You can, however, have them made to order, and they ought to be the cheapest of all supers, being so simple. In the reply to "Pennsylvania," on page 19, you will find instructions for making it yourself.

Likely Laying Workers.

Today I was surprised to find drones flying from one of the hives. The day being pleasant, I made an investigation, and discovered plenty of bees and stores, and an average number of drones of good size and color, as in mating season. There were a number of eggs in cells, principally in drone-cells, sometimes 2 eggs in a cell. No young brood. I did not find the queen, but there is a capped queen-cell of fair size which will open in about 7 days. The queen was from the season of 1908, and is of dark Italian stock. This is a case of supersedure.

Did you ever learn of a like experience at this season of the year? LOUISIANA.

ANSWER.—Your statement that eggs are "principally in drone-cells, sometimes 2 eggs in a cell," makes it pretty certain that you have a case of laying workers, unfortunately nothing very unusual. If my guess is correct, you will find that the queen-cell will never hatch, and if you open it you will find a drone in it. There is a possibility of a drone-laying queen, but more likely laying workers.

Choice of Locusts.

In your locality, which would be your choice of the locusts as a honey-plant—*black* locust of *honey* locust. SUBSCRIBER.

ANSWER.—I don't know which is best. Who does?

Introducing a Virgin Queen.

I dropped a virgin queen on a frame of brood in a queenless colony July 1, and looked 4 days later and found the queen present. In 10 days I looked again and found one frame with eggs. Thinking all O. K., I did not look for 21 days. I then found the same frame filled with brood with only a few cells containing pap applied to one side of the egg. In a few days I looked again and found eggs as before, with pap at the side of the eggs, but no eggs hatched. I left the brood several days more, but no eggs ever hatched. Even though this queen might have been a drone-layer why did not the eggs hatch? The eggs were large, developed eggs, not worker-eggs, as she laid in a mating-box after being placed there. MICHIGAN.

ANSWER.—I had one case at least, and other cases of the same kind have been reported, in which the queen laid, but no eggs hatched. I don't know why. The unusual thing in your case is that the queen at first laid eggs that hatched (for you found brood present 35 days after giving the queen), and later no eggs hatched although fed by the workers. I never heard of such a case before, and can give no explanation.

Beginner's Questions.

1. Where one is running for honey, is it best not to let the bees swarm?

2. What is the best way to keep bees from swarming, where one is too timid to cut out queen-cells?

3. After a queen is mated to the drone, does she remain in the hive all summer, or does she come out for a flight? If so, how often?

4. If I have a hive full of crooked combs, and do not wish to cut them so as to get at the queen to catch her in order to introduce a new queen, how would it do to set a queen-trap for her?

5. Are queens always shipped in introducing cages? That is, where a person buys the queens from a practical bee-man?

6. If you were going to start over again with bees, laying all prejudice aside, what kind would you prefer?

7. In buying a full colony of bees from a practical bee-man, does he send a made-up colony, viz., a few bees, brood, and some honey from several colonies, or a colony that has been working together for some time?

8. I am thinking of getting a start of pure Italian bees, but I have a neighbor who has

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the common black bees. He lives half a mile from me. Do you think they would mix that far with my Italians? MISSOURI.

ANSWERS.—1. Yes, if you can.

2. I don't know of any way for him to prevent all swarms, but I'll tell you how he can generally prevent all after-swarms. When the prime swarm issues, hive it and set it on the old stand, with the old hive close up to it. A week later move the old hive to a new place distant from the old stand 6 feet or more. That's all; the bees will do the rest, and you will generally have no second swarm.

3. After leaving the hive for her wedding flight she is not expected to leave it again all her life, unless she goes out with a swarm.

4. I don't see very clearly what you're trying to get at. I suspect from the previous question that you have an idea that the queen comes out now and then, which she doesn't do. The only time you would trap her would be when she takes her wedding flight, or when she swarms. You would hardly find it satisfactory.

5. Yes.

6. Not so sure about the prejudice part, but I know I'd start with Italians.

7. He would probably send one that had been in existence for some time as a full colony; although I don't know why the other might not be just as good.

8. Yes, you can bank on it.

Transferring from Frame Hive.

I have a colony of bees in a home-made hive. The hive is not quite as large as an 8-frame hive. How would you transfer them into an 8-frame hive? When is the best time to transfer? IOWA.

ANSWER.—Wait till the colony swarms, hive the swarm in a proper hive, setting the swarm and the old hive close together, and 21 days later cut up the old hive, add the bees to the swarm, and melt up the old combs. Or, if you want to have another colony, at the end of the 21 days transfer from the old hive into a new hive, according to instructions for transferring in your bee-book. Another way is not to wait for swarming, but to transfer from the old hive in fruit-bloom.

Clipping the Queen.

In clipping a queen, what wings should be cut off, and how much should be cut off? How should I hold her to clip her wings? Last Spring I bought a colony of bees on May 13. They swarmed, and then on the 11th day they swarmed again. I had bad luck. They both got away from me. The first 3 or 4 days before the first swarm they stored 2 or 3 pounds of honey, and then came out and left. MARYLAND.

ANSWER.—It doesn't matter much how you do, so the queen can't fly. A queen has 4 wings, a big one and a little one on each side. If you cut off one of the big wings, that's enough to stop her flying, but when you get a mere glimpse of such a queen as she runs, it is not so easy to tell whether or not she is clipped as when both wings on one side are taken off. I'll tell you how I clip a queen. I hold her between thumb and finger of the left hand, not by the abdomen or soft part, but by the thorax, the hard part that is between the head and the abdomen, with her head looking toward my left, and then with a pair of gentlemen's pocket scissors I cut away as much as I conveniently can (generally more than half) of the two wings on one side.

Getting Increase of Colonies.

1. I am just starting in with bees. I bought 2 colonies of Italians with the honey, so I think it would be best for me to try to get as many swarms as I can. How can I do it? They have 2 supers to the colony, one on top of the brood-chamber and one under, and they are loaded with honey. I was thinking of taking off the supers and cutting them down to the brood-chamber so I would get more swarms. Will it work all right? I think it will not be wise for me to shake or brush swarms until I know more about bees.

2. I think it will be best for me to get queen-cages for the hive. When should I put them on, or can I just put them on and leave them all the time? I know how to handle bees in swarming time, for I have had one colony of black bees for 4 years, but can't get any swarms, and when they do swarm I can't keep them. I will hive them, and the next day they leave me. So what is wrong? I will have the frame-hive now. KANSAS.

ANSWERS.—1. You will probably get as many swarms as you want, or at least as many as it is profitable to have, if you let the bees swarm naturally, not moving the old hive, and putting each swarm on a new stand. The bees will be more certain to swarm if you remove one or both supers, as a large amount of room tends to limit swarming.

2. I'm not just certain what you mean by having queen-cages, but suspect you mean to have queen-traps to put on the entrances of your hives so the queens can not abscond with the swarm. That is hardly necessary, and in some cases might not work satisfactorily. It's a pretty safe guess to say that your trouble from having all your swarms leave comes from too much heat and lack of air. When you first hive a swarm, let the hive be raised from the bottom so as to allow plenty of air, and also let the cover be partly open. It will do no harm if an opening of 2 or 3 inches is left at the top for the first week. If the hive can not be set in a cool, shady place, shade it in some way. A big board held down by a stone on top will do. Also, a perhaps better shade is made by an armful of long grass on top and held down by 2 or 3 sticks of firewood. Some prevent swarms from absconding by giving each swarm a frame of brood.

T-Tins in Supers.

I am informed that you use nothing but the T-tin in your comb-honey supers. It looks to me that they should be the best all around, but they say that the weight of honey will make the tins give or bend. What is your experience? The bees glue the wood-holders very tight in this locality. The wood separators are also troublesome. MISSISSIPPI.

ANSWER.—Whoever they are that "say that the weight of honey will make the tins give or bend," it must be that they have never seen a T-tin, or else they are poor judges of the strength of ordinary tin. On the contrary, it would take a much greater weight to bend a T-tin than to bend any wooden support in use in supers. Remember that there are two thicknesses of tin standing ½-inch upright. I have had 3,000 T-tins in use for many years, and have never known one to be bent the slightest by the weight of honey. It would probably be all the same if the honey were 5 times as heavy.

Southern or Northern Queens.

1. Do you consider it advisable to send South for a breeding-queen to rear queens for my own use in an apiary of 50 to 60 colonies, or would you consider Northern-bred queens superior? My object in sending South would be to get a breeder cheaper.

2. Would you advise having her mailed, or sent in a nucleus, in order to have her arrive safely?

3. Would I be safe in depending upon a Northern queen-breeder to furnish a breeding-queen by May 1 to 15, or in time to rear queens from her for early increase the same season? or would I have to wait for them to rear young queens to take the place of breeders as sent out? PENNSYLVANIA.

ANSWERS.—1. Other things being equal, I don't see why it should make any difference whether a queen is reared North or South.

2. I should have the queen mailed in a shipping-cage. The other way is too expensive.

3. Yes, you would be safe if he agrees to send one as early as that. For you probably intend to get a tested queen as a breeder, and he could send you one reared the year previous. If you mean to buy an untested queen, I wouldn't want one reared in the North as early as May 15.

Solar Wax-Extractor—Uniting Weak Colonies in Spring.

1. I think it would be an impossibility for me to get along without the American Bee Journal. I think it fills the bill in every respect, although there are some things a person would like to know that I have not noticed in the Bee Journal. One of them is how to make a solar wax-extractor without much expense. Does the solar wax-extractor take out all the wax, especially out of old combs?

2. How would it do to unite weak or light colonies of bees in the spring, immediately upon taking them out of the cellar, and let them mix while taking their cleansing flight, and let the queens settle their part of the question; then after a few days drive the bees below, and put below what honey is in the upper hive? IOWA.

ANSWER.—1. Any kind of a box, and of any size, covered with glass, so placed that the rays of the sun shall shine directly into it, will become hot enough on the inside to melt wax. A single pane of glass will do if large enough, or a common window-sash may be used. To hold the pieces of comb to be melted, you may have a plain sheet of tin, slanting 1 to 3 inches (according to the size of the box) from rear to front, so that the melted wax will run down into a vessel that you will place under to catch the wax. Or, you may use a sheet of wire-cloth, so the wax will run through. This will work very nicely with cappings and bur-combs, but a good deal of wax will be left in old brood-combs. Especially will this be so if one brood-comb lies over another.

2. That will work all right, only it is better to do such uniting in the fall, for two weak colonies will winter better united than separate. Even when you have united in the fall, there may turn out some weak colonies that should be united in the spring, and then your plan will work.

Rearing Queens—Selling Bottled Honey.

1. By taking the queen away from a strong colony of bees in the midst of a good honey-flow, and allowing the bees to build queen-cells, would you get as thrifty, long-lived, prolific queens as from cells built under the swarming impulse, or artificial means?

2. What do you think of the plan of bottling honey and making it an expensive luxury so that the consumer can just taste of it occasionally? Would there not be more of the spirit of "loving our neighbors as ourselves" to cut out the middle system of bottling, and sell it to him at a figure so that he can make it an article of every day diet? In the long run, would there not be more dollars and cents for the bee-keeper? NEW MEXICO.

ANSWERS.—1. Yes, especially if you give to your queenless colony a frame partly filled with freshly-built comb containing eggs and young brood. At least that is my private opinion, based upon a good deal of experience with the different kinds of cell-rearing, only I have not had much experience with natural-swarming cells. Yet some, perhaps many, hold different views.

2. The way to do is to sell honey in as large and inexpensive containers as possible, so as to make as little expense as possible for each pound sold. That ought to give the consumer the most honey for his money, and the producer the most money for his honey. Unfortunately, however, we are often controlled by conditions and circumstances. A large part of the consuming public are in the habit of buying in small quantities. A Chicago retail grocer who should keep honey only in 20 to 60 pound packages would probably sell very little honey, whereas plenty of customers will buy a pound at a time, even if they must pay for a bottle of no value to them. What better can he do than to keep the small packages?

Experience of a Beginner.

1. I purchased a colony of bees in the spring of 1907. This colony cast 2 swarms the first season, and from this colony and the first of the new ones, I took off one super each of comb honey, and the other about 2-3 of a super. The old colony weighed, with brood-chamber only, 76 pounds. The 2 new colonies weighed, respectively, 55 pounds and 37 pounds. I wintered them in my coal-house. I know practically nothing about handling bees or examining them, so in the spring I put them on the stands again and awaited results. Last spring the old colony again cast 2 swarms which I secured. In the fall when I took off the supers to put them into winter quarters, I got from the first new swarm about 25 pounds of comb honey. But when I took off the super from the second new swarm I found there had been nothing doing. I then examined the hive-body, and found it deserted, with an amount of comb left behind which would indicate about one week's work. What was the cause? The hive was a new one.

2. When I came to put in the 3 old colonies, I found only about 10 pounds of comb honey in the 3 supers combined. Why *this*

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dearth of honey? There was at least 2-3 of the sections that showed no comb construction. What was the reason? The old hive, which the year before had weighed 76 pounds, now weighed but 64 pounds. Of the other two, one weighed about the same, and the other about 10 pounds heavier. I would like to know my mistakes, and the remedy.

SOUTH DAKOTA.

ANSWERS.—1. I can only guess, and the first guess that comes when a swarm deserts after having made a start at building is that there was too great heat. The remedy is to shade the hive and give plenty of ventilation by a large entrance, or some other way.

2. I am not sure whether I understand correctly, but as I understand it, you left the supers on till time to go into winter quarters, and then found less honey in them than there had been previously. There was nothing unusual in that. If supers are left on after the harvest closes, in a little while the bees will begin to carry the honey down into the brood-chamber. Next time take the supers off when the harvest is over. There are various reasons for difference of weight in different colonies, and of the same colony in different years.

Keeping Honey—Extracted vs. Comb Honey.

1. Can honey from this year be kept till next year without spoiling?

2. I have a notion to run my apiary for extracted honey. Is there more profit than running for comb honey?

3. What book can I buy that explains the work about extracted honey? ILLINOIS.

ANSWER.—1. Yes, there is no trouble in keeping extracted honey over, and even comb honey may be kept in a dry and warm place.

2. Some find it more profitable to run for one kind of honey and some for the other. It depends upon kind of honey, markets, etc., and a good deal depends upon the bee-keeper.

3. Root's "A B C and X Y Z," Dadant's "Langstroth," Cook's "Manual," or almost any of the other books on bee-keeping ought to help you out.

Probably Mostly Italian — Giving Queen vs. Superseding.

1. What kind of bees are the enclosed?

2. Do bees that requeen themselves do as well as bees that are given a new queen? and what becomes of colonies that are not interfered with in the least, except to put on supers, take off the surplus honey, etc.? Is that a good plan, or is it necessary to requeen to obtain best results?

A BEGINNER.

ANSWERS.—1. It is not easy from seeing a few bees to tell what they are. The first cross between black and Italian blood will show workers all the way from those having 3 yellow bands to those having none, so if you should show a few of these with 3 bands to the best judge in the world, he couldn't say whether they were pure Italians or hybrids. Besides, when bees are sent flat in a letter and mashed in the mails, it is still harder to tell. I should guess that the bees you send are mostly Italian blood.

2. If bees are of the right kind, it is all right for them to requeen themselves. I'd give money if my bees would never swarm and leave me to do nothing but to attend to the supers. I'd be glad to leave the requeening to themselves.

Starting in the Bee-Business.

1. How many colonies could I *safely* manage the first year? The limit.

2. The first year I shall have to buy my colonies, and they may be had in all sorts of hives, getting them somewhere in this community. But the new swarms, etc., I desire to start in the *best* hives. How many hives ought I to have on hand, to have each one fully equipped for a good season?

3. Where can I get *one* hive fully set up as a sample, from bottom-board, hive-body, Miller frames, super, etc.? When can I put in my order, and for the balance I shall need in the flat ready to set up, according to sample?

4. What other supplies shall I need, as smoker, tools, sections, foundations, etc.?

5. About what will be the total cost?

I want to go into the business for pleasure and profit, too. IOWA.

ANSWERS.—1. You've asked too hard a question, and I wish I could refer it to some one else. Generally, it is not a hard question to answer, the orthodox answer being to commence with 2 or 3 colonies. With that number you can't lose very much, no matter how many foolish things you do with them, and you have a lot of practice with 2 colonies. Generally, too, there is only a little time that can be taken from other pursuits, and these latter can not be intruded on too much. Your case is different. Most of your time will be at the disposal of the bees, and some of it would not be fully occupied with only 2 or 3 colonies. Also, you have been doing some advance study that fits you for undertaking more than the average beginner. I've an idea, too, that a retired preacher is safer than the average to trust with bees. So I'd venture the guess that you'd be quite safe with 25 colonies, and even though you might make some bad work with a larger number, might gain enough additional experience with 50 to pay for all the mischief you'd do with them.

2. That depends. If you start with 10 colonies, get 3 new hives for each colony. You will possibly have 2 swarms from each colony, and you will want to transfer from the old hive. If you don't need them all, they will be good for another year. This with the idea that you will care more for increase than for honey. If you start with 25 or more, get 2 new hives for each colony, counting on doubling your number and getting a fair crop of honey.

3. If you had left out that Miller frame, I'd have said from any supply dealer. I'm not sure that any one makes the Miller frame but the G. B. Lewis Co.

5. You've made out a pretty good list, and you'll want a veil, and—but say; I tell you what to do: write for a catalog to each one of the supply-dealers that advertise in this journal. You'll tell then better than I can tell you what you best have, as also the cost, and you'll be interested in looking them over.

Effect of Tarred Paper on Bees—Foul Brood.

1. Is tarred paper injurious to bees and honey?

2. What is foul brood, and what are some of the methods of curing it?

Perhaps these questions seem silly, but I am only a boy 14 years of age, and know hardly anything about bees, and have only 2 colonies, so need the coaching of an experienced apiarist. MASSACHUSETTS.

ANSWERS.—1. Not in general. If honey were kept for a time directly in contact with paper strongly impregnated with tar, it would probably hurt the flavor, but wrapping tarred paper about a hive would not produce any such result.

2. Your question is one of exceeding importance, and if you are wise you will not rest satisfied until you are well informed as to foul brood, for at any time it may come to pass that foul brood, or something that you fear is foul brood, may appear among your bees, and you should be ready for it. But there is not room in this department to tell you all about it, and you will find much upon the subject in back numbers of this journal, as well as in most of the books devoted to bee-keeping.

Changing Bees on Home-Made Frames to Hoffman.

I have 5 colonies of bees in standard 8-frame hives. Three of them have home-made frames of common lath, and the combs are bulged, and very uneven. Which would be the best way to change them in the spring without setting them back too much? I would like to give them proper frames. Would I have to break up the colonies in order to change them to Hoffman frames? I am wintering them in the cellar, and have 4 thicknesses of burlap over them. They seemed to be doing well until now, but with the way the frames are I can not do anything with them, without tearing the combs to pieces. They were that way when I bought them last spring. I had 2 swarms last summer, but no surplus. They seem to have plenty of stores to carry them through. MINNESOTA.

ANSWER.—What is to be done depends upon what shape the combs are in. It may be that they are somewhat bulged and uneven, and yet so that by a little cutting they can be straightened out all right. In that case, as the combs are probably of the right size, they can be cut out and put into the right kind of frames without setting back the bees at all. Do the work at the time of fruit-bloom, when bees are busy at work, and will rapidly mend the cut places. If the combs are built crooked in the frames, so that you can not get them into good frames, then wait till the bees swarm, and 21 days later you can cut out the combs and melt them up.

Transferring Bees.

I have 2 colonies of bees in 8-frame hives. The bees have built the hives so full of bur and brace combs that they can scarcely get into the supers, and they have all these bur and brace combs full of honey, so that it is almost one solid chunk of honey.

1. Is there any way in which these bees can be taken or driven out and transferred to a hive with straight filled-out combs, though empty, and then feed them? How can I get them out? Should I wait till they swarm?

2. What caused them to build this way? They had empty supers on at the time, although they didn't have any empty comb for baits, just 3-cornered starters. I have 15 colonies, but only these 2 have built this way. IOWA.

ANSWERS.—1. It is not entirely clear what the trouble is. If it's only brace and bur combs, then the only thing to do is to pry up the super and scrape off the bur-combs. But when you speak in one place of transferring to a hive with *straight filled-out combs*, that looks as if the combs were built crooked. If the combs are built crooked, then you are to straighten them, cutting apart where necessary, and forcing each comb into its own frame and fastening it there with strings till the bees build it there. If the combs are too crooked for that, then you must transfer. Wait till the bees swarm, and 21 days later cut out old combs and melt them up, adding bees to the swarm.

2. If it is merely a case of bur-combs, there is probably too much room between hive and super—¼-inch is about right. Of course, the bees will build in bur-combs again so long as they have too much room, no matter how often you may scrape them out. If too much room is not the trouble, I don't know what it is.

Stories About Bees.

In a recent article in one of the leading magazines, a writer of some prominence makes the following statements concerning the orange-growing region of Florida:

"Every tree (orange) is alive with honey-gatherers; but they get drunk with delight, and it is said that they do not make as much honey from orange blossoms as from some common weeds. * * * I know of nothing like it in the North, except when the lindens are in blossom, and then you get it, for the *bees will work in the lindens all night.*" (Italics are mine.)

In the same article two other statements are made that seem strange to me:

"Seventy-five great pines, 50 feet to the first limbs, surround my house. In midwinter, when these are in bloom, whole swarms of bees are up there at work, and *pine honey is not so bad after all.* It has a taste of figs."

"I have a neighbor who has devoted himself to bee-keeping, and does as *well here in winter* as he does in Ohio in the summer—that makes a whole year of it."

From these statements it would seem that bees are accustomed to work in linden trees all night, that they store honey from pine trees, and that bees in Southern Florida gather honey in the winter to such an extent as to make it practicable and profitable for an Ohio bee-keeper to own and operate apiaries in both States—working the Northern apiary in the summer and the Southern in winter.

I am not an old hand at the business, having kept bees but 5 years; so I expect to learn new things about bees. However, I have read 4 or 5 bee-books, including "Langstroth," "A B C," and "Forty Years Among the Bees," and I also take and read the 3 bee-papers published in this country, and in them all I have seen no mention of pine honey, or of bees working at night. About bees storing honey in Florida in winter I know nothing, having never been there; but I wonder what the Ohio bee-keeper did with those Florida bees in the summer.

Will you kindly inform me how much of truth there is in these statements?

PEORIA.

ANSWER.—The writer is not so far off as you probably think.

It is just a little uncertain what he means when he says that bees working on orange

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blossoms "get drunk with the delight." That may be a figurative statement, meaning merely that the bees become very much excited at their work. It may also mean that the bees appear stupid as if intoxicated. I have never heard of anything of that kind with regard to oranges, and if it is at all common it is strange that no one has ever mentioned it before. Yet I have seen the same thing when bees were working on Echinops spherocephalus, called also Chapman's honey-plant. Often several bees would be seen on one of the globular heads of flowers, looking very much as if they had become stupefied by what they had been gathering, just sitting in a dumpish condition, scarcely moving when touched by the finger.

I don't know about bees working on lindens all night. I think it has been reported that on very bright moonlight nights bees kept at work on the lindens, but I don't know how much honey has been gathered in that way.

I never heard of pine honey in this country, but in Europe, near the great pine forests, pine honey is quite an item. I have seen bees at work busily on my evergreens gathering pollen, but could not say whether they got any honey.

In the South flowers bloom and bees gather at the time bees are in winter quarters at the North, and I have an indistinct recollection of bees being moved back and forth, but not lately, so I doubt if it is a very paying performance.

Wintering on Diseased Honey.

I am a young bee-keeper, 17 years of age, and own 2 strong 10-frame colonies, and one weak colony. I am wintering them out of doors.

June 16, I got a weak colony of gray bees, but they somehow succumbed to foul brood or bee-moths. I was not, at the time, in a position to look after them in the proper manner and they became weaker day by day until they could not resist the thieving bees of the stronger colonies, which robbed them of all their surplus honey. A few days after, upon inspection, I was surprised to find my weak colony deserted. I forgot to say that I had looked several times for their queen, but was unsuccessful in finding her royal highness. I think she died.

Today my surviving colonies' floors are saturated with honey, but they seem to be wintering well. Do you think they will winter all right with that diseased honey stored in their brood-chamber, for I think it was diseased. What ought I to do? ILLINOIS.

ANSWERS.—It may be that it is only the moisture from the bees that is running on the floor of the hive. In that case there is nothing to do unless to give the bees a little larger entrance. But if there is any foul brood in the case, the matter is very serious, whether anything is running out of the hive or not. There is nothing to be done at this time of year with the bees, but there is something to be done with the bee-keeper, and that is to get him thoroughly informed about foul brood, so he can tell whether his bees have it, and what to do if they have. If you have the back numbers of the American Bee Journal, you will find much about foul brood. Also in the bee-books. Then if it turns out that your bees have the disease you will be able to act intelligently, and if not you will have some information that may be of great value to you at another time.

Feeding Sugar for Winter Stores—Open Winter.

I am near the Kentucky and Tennessee line. I have 9 colonies of bees in hives 18¼ by 14¼ by 11¾ deep, inside measure. I started last spring, made my own hives, and bought and transferred bees from log-gums. I did not get this work done until after fruit-bloom, on account of ordering my supplies late, and then having them lose 30 days in freight transportation. I used full sheets of foundation. I bought Italian queens and requeened nearly all of them, although most of them were Italian stock. I got very little surplus. I think it was because I was not ready for the harvest. Some of them went into winter quarters with plenty of stores, I think, and some had very little.

1. On November 25, I made a mixture of granulated sugar and water, just enough water to wet the sugar. I then took out some frames of comb from 3 hives, and poured this into the comb. Is this a good way to feed? We have had a very cold winter. Bees have been flying every week or ten days, and have been flying every day for 4 days. The thermometer is above 60 degrees.

2. Do bees get anything to eat or build up on this kind of weather and time of year, or do they require more stores than they would with a regular cold winter, or in the cellar? I have a large cellar, and could put them in, but did not think it necessary this far South. KENTUCKY.

ANSWERS.—1. Merely wetting the sugar without thoroughly dissolving it is not good. The bees will use out the liquid part, carrying out the granules, thus causing waste of sugar and extra work for the bees. To be sure, in England they sometimes feed dry sugar, but their climate is not so dry. Besides, the sugar is over the bees, and the moisture from the bees arises and settles on the sugar.

2. I don't know. There may be something in bloom in pretty cold weather, but certainly very little even so far south as southern Kentucky for bees to work on in January. They probably use all the more stores for flying so much. Yet bees would probably not do so well in the cellar so far south.

Best Hive for Extracted—Winter Protection, Etc.

1. Which is the best hive for extracted honey and artificial swarming? If a 10-frame is better than an 8-frame, would not a 12-frame be better than a 10-frame, to prevent natural swarming and to receive the greatest amount of surplus?

2. If a hive is protected from 3 sides by nailing heavy galvanized tin to it so as to be waterproof, and allow about 3 inches of straw to be packed between the body of the hive and the tin, would it protect a colony of bees over winter, and induce early brood-rearing in the spring, in Kansas?

3. How many colonies of bees can be kept on 40 acres of alfalfa without overstocking it? KANSAS.

ANSWERS.—1. A 10-frame hive is better than an 8-frame, and most of those who produce extracted honey use 10-frame hives. Yet some think a 10-frame hive is too small. Instead, however, of using 12 Langstroth frames, these generally use frames of larger size. The Dadants, who are in the lead as successful producers of extracted honey, and who have an astonishingly small number of swarms, use the Quinby size of frame, 18½ x 11¼. The hive takes 11 of these frames but by the use of division-boards the number is generally reduced to 9 or 10.

2. That ought to provide good protection. I don't know whether it would induce earlier brood-rearing.

3. I think I've seen it estimated by some one in the alfalfa regions that 2 or 3 acres might be counted on for a colony of bees. But in some places alfalfa yields more than in others, and it is very evident that the treatment of the alfalfa must make a great difference. If 40 acres are allowed to stand for seed, allowing the bees the fullest benefit, or if the alfalfa is allowed to be well on in bloom before each cutting, it might not be such a wild guess to say that there might be several colonies for each acre. If it should be cut each time just as it begins to bloom, 10 colonies might be too many for 40 acres. So there you are.

Late Mating of Queen—Hive-Covers—Winter Protection Most Important Thing.

1. Do you agree that a queen is never mated after she is 2 or 3 weeks old? Last March I had a colony of bees supersede its queen, and this colony contained just a small patch of drone-brood which did not hatch till the queen was about 10 days old, and there was no other drone-brood in the yard. The queen commenced to lay when she was about 2 months old, and now she is the mother of one of the strongest colonies. I give this simply for what it is worth. I examined this colony once every 2 days, till the queen started to lay, and so these figures are accurate.

2. Do bees, when they die a natural death, without being molested, have their honey-sacs filled with honey? If I am correct, they always do unless they are starved.

3. What kind of a hive-cover do you prefer for a climate like Central Missouri?

4. What do you consider the best protection for bees in single-walled hives, wintered on the summer stands? Which do you like best, wooden cases, or paper wrapping, or do you prefer something else to either?

5. What do you consider *the* most important *thing* in all bee-culture, if you consider one of any more importance than the rest? MISSOURI.

ANSWERS.—1. As a general rule a queen is never mated after she is 10 days old—perhaps not after she is a wek old. But there are exceptions, and how far those exceptions extend I don't know. Some say that a queen born in the fall may not be fertilized till the next spring. If your queen did not lay till 2 months old, she may have been fertilized only 3 days before she began to lay, and she may have been fertilized sooner, but likely she was at least a month old when fertilized.

2. I don't know, but I suspect that in general a bee dies with an empty sac. It would otherwise be a waste, and Dame Nature is a pretty economical old lady.

3. For that or any other climate a hive having a dead-air space. It is warmer in winter and cooler in summer.

4. Hard to say. Perhaps, convenience and all things considered, the paper wrapping.

5. A thorough knowledge of everything connected with the business. Perhaps you want to know which is more important, the bees, pasturage, hive, or some other thing. Hard to say. Bees are no good without pasturage, and pasturage is no good without bees. You can't very well get along without a hive. But if you insist that I must pick out some one thing to which the bee-keeper must give the greatest attention, I think I would say the queen. For whatever the queen is, that decides what the bees are. By breeding for the best all the time, a man is more likely to get ahead than by giving his attention to something else, such as hives or pasturage.

Transferring from Store-Box.

I have a chance to buy a colony of bees which are in an ordinary store-box. Can they be transferred to a good bee-hive, and if so, how is it done? ILLINOIS.

ANSWER.—Formerly it was thought the correct thing to transfer during fruit-bloom. Nowadays you wait till the colony swarms, hiving the swarm in a movable-frame hive, then 21 days later cut up the old hive, adding the bees to the swarm and melting up the old combs. If the store-box that contains the colony is very large, the bees may be slow about swarming. In that case it is well to reduce its capacity to a cubic foot or less. You may do this by cutting away the lower part of the box, even cutting away unoccupied combs. Of course, you will do this early in the season, before the bees begin to fill up. Possibly the box is not very deep, but long. In that case you may fill something, as hay, into the unoccupied end. If you prefer, however, to transfer during fruit-bloom, you will find instructions for transferring in your bee-book.

Do Nurse-Bees Affect Queen—Unfinished Sections.

1. Is the nature, quality, color, etc., of queens affected by the bees that rear them from the egg? That is, if I give a cross colony eggs from a queen whose workers are gentle, to rear a queen, will the workers of the queen reared be gentle if she is fertilized by a drone from a gentle colony?

2. What causes one side of a section of honey to have a portion about one inch from the bottom not finished and the other side perfect? With the same foundation on other colonies, every box was filled full, and capped. I don't mean the outside sections. NEW YORK.

ANSWERS.—1. It is held by some that the character of a queen is materially affected by the nature of the nurse-bees that rear her. It is certain that a young queen poorly fed will not be so good as one that has a bountiful supply of best food. That is perhaps the chief reason why the attempt to rear queens very early in the season is generally a failure. But take two royal larvæ, one fed by nurse-bees of the most vicious temper, the other by the gentlest of all bees, each being alike lavishly fed, and it is hard to understand that there should be any great difference in temper of the young queens, if both had the same mother.

2. I'm not certain I fully understand the case. As nearly as I can make out, the sections all through the super are only partly filled toward the bottom at the outside of each section. That would be the case in a poor season, or at the close of any season when the bees did not get enough to fill and finish all the sections. In a case of this kind it is always the outer side of the section that lags

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the most, perhaps because warmer toward the center. Possibly there may be some other reason for the outside of the section being behind the inside, but the fact of the difference I've often noticed. But other colonies, you say, in the same yard, plumped out their sections all right. Well, the answer is still the same; there wasn't enough honey to fill out the sections. Not that there was not enough honey in the fields, but because the bees were too few in number to bring it in, or else too lazy to do so. That's the best I can do at a guess.

Plan for Control of Swarming.

I have practised the plan advocated by Mr. Chapman, in lifting frames of brood over the zinc excluder just prior to the honey-flow. After the 2 upper supers have been extracted the large force of workers will fill 3 comb-honey supers at once. As I like to produce comb honey, I thought to use the Dudley system of tubing, but after the manner recommended by a writer in the Review, which consists in placing the hive containing the brood alongside the hive in which the queen is, with a tube connecting both. As you claim that some heat is lost by the Dudley system, how would it do to tack wire-cloth on the bottom of the hive containing brood and place it immediately on top of the section super or supers; then attach a Dudley tube connecting said hive-body with the entrance of the lower hive containing the queen?
MICHIGAN.

ANSWER.—The plan may likely work all right. Like many other things in bee-keeping, you never can feel sure until you submit it to the bees themselves.

Hive-Entrances—Bait Sections—Foundation—Supers.

1. How large ought the entrance to be for bees to do best?
2. What do you mean about baiting to get the bees to work? Do you put in sections partly filled with honey?
3. What kind of foundation is the best to use? I use what is called "light brood" in the catalog. Is that all right?
4. Do you fill all the frames with comb foundation when you hive a swarm? I have the 8-frame hive.
5. How do you manage about putting on the supers and taking them off, and when?
6. Do you fill all the supers with comb foundation?
WEST VIRGINIA.

ANSWERS.—1. It may vary all the way from 2 to 24 square inches, according to time of year and circumstances. At this moment my bees have 24; but they are in the cellar, and if out would not have any such large entrance. As soon as they are put on their summer stands they will have only one square inch for an entrance. Then when hot weather comes they will again have the big entrance.

2. Sections that are only partly filled are emptied out by the bees in the fall, and the next year one or more of these are put into the first super to start the bees. Such sections are called bait-sections, or baits.

3. Light brood, supported by wires or splints, is all right.

4. Yes, for if you leave any part of a frame without foundation the bees will build drone-comb there. Some, however, give only part of the frames when a swarm is hived, as only worker-comb is built at first, and afterward give the rest of the frames with comb or foundation.

5. That's too big a question to be answered here. You will find it fully answered in your bee-book, and after studying that, if there is anything you do not understand, your questions upon any point will be cheerfully answered here. This department can not take the place of a bee-book; but comes in only as a supplement.

6. Personally I fill each section with foundation. Some use starters, filling only half or fourth of the section.

Colony Stored No Honey—Best Bees for Comb Honey—Nucleus Plan of Introducing.

1. What is the matter with one of my colonies of bees? I hived it a year before last, so it has had 2 seasons. All last season it would not work in the super, nor store any honey, while the rest were working fine. It acted weak in the fall. I thought it would die, as some of my other weak ones did, but it kept well all through the winter, and it is one of my best colonies right now, and it did not swarm last season when all the rest were swarming. The winters are very warm here. It is not necessary to do anything toward wintering. I looked at it today and the bees are carrying in pollen—quite a lot of it. I think it was working more than any other of the 5 near it. What do you think is the matter, and what could I do for it?

2. What bees do you think are best for comb honey? I have heard that the gray Carniolan and Banat bees are better than the Italian. Do you think so?

3. Is the nucleus plan of introducing, as stated in the "A B C of Bee Culture," of 1905, a good one? Do you put the queen in right away with the frames?

The winters are very mild here. The almonds will be in bloom about February 15, so that the bees get an early start. Willow is almost in bloom now. Bees are working on the buds now, but it is not a very heavy honey-producer.
CALIFORNIA.

ANSWERS—1. Hard to guess without knowing more about the case. It is possible that the colony had a very poor queen and have superseded her, and now have a much better queen, so they are doing better. Too much drone-comb in the hive may be one trouble.

2. All things considered, you will probably do as well with Italians.

3. Yes, the queen may be put in when the nucleus is first formed—caged, of course—and there is less hostility to her because there are mostly younger bees in a nucleus.

A Bunch of Interesting Questions.

1. What would be the result if I were to put say three supers containing extracting-frames and sections over a good swarm of bees about June first, particularly if they were a swarm put back on the old stand in an empty hive? Would they store as much honey as though I put the supers on one at a time?

2. I am using a super 5⅝ inches deep. What would be the result if I were to use two of these fitted as brood-chambers? Would it do as well as a hive 10 inches deep with continuous frames?

3. What methods, if any, besides the knife have been used since the invention of the extractor to get rid of the cappings of the combs?

4. Make a guess as to the thickness of capping of combs containing honey.

5. I am compelled to move my bees in the spring. If I leave a weak swarm in the yard will returning bees go to it?

6. In the coming season I am going to use some bottom-boards open at both ends and with spaces varying from ⅜ to 2 inches under the frames. Has this ever been tried, and do you not think it possible that a small space open at both ends would keep a hive as cool as a deeper one closed at one end?

7. Is a "chaff" hive entirely practical? If not, what are the objections to it? I have no cave and do not like to contemplate the work incident to packing 50 or more hives with paper or other material.

8. Would it not do just as well to raise the super from the hive, and from each other when there are several on, as to "slide them back a little," for ventilation, besides being much easier? Pried apart and a wedge, or match, shoved in, would not let so much rain in, in case of a sudden storm as though they were slipped over.

9. Some years ago, before I got bees, some one proposed to put the bees into a hive with a large number of sections instead of frames. What was the man's name, and what was his plan, if not too long to detail? Otherwise, where can I find an account of it?

10. The coming season I wish to produce more extracted honey than comb, in sections. May I put both sections and extracting-frames into one super, using fences between frames and section-holders? I should use two frames to one of the section-holders.
IOWA.

ANSWERS.—1. The chief objection to putting on too many supers at a time is that it makes too much room for the bees to keep warm. But the time bees swarm the weather is so warm that it would make little difference unless there were cold spells. Even then, the difference would not be so very much.

2. It would be all right except that it would leave a deep space under bottom-bars for the bees to build down in. You could put something in the bottom-board that would reduce that space to an inch or so.

3. Turn to page 306 of the American Bee Journal for October, 1908, and you will find description and illustrations of the Bayless uncapping machine.

4. Possibly 1-64 of an inch; but that may be a wild guess.

5. That depends on the distance. If a mile or more, no bees are likely to return. If only a short distance many will return, and unite with any colony left there. If you don't want them to return, you might try the plan of Geo. W. Williams, "the shaker." As soon as you put a colony on its new stand, take out the frames and shake all the bees on the ground in front of the hive and then let them run in.

6. Yes, practically the same thing has been tried often. The opening at the back end will do as well as, or better than, having a deeper space. Only it isn't quite so convenient at the time of year when you want to keep things warm.

7. Chaff hives have been successfully used to quite a large extent, although perhaps not so much as formerly. One objection is their weight and unwieldiness; another that when the sun shines on a hive in winter it takes too long for the heat to penetrate the thick walls.

8. In the long run it would be much harder. You would have bur-combs galore, and a dauby mess scraping off the honey built in the deeper space.

9. I don't remember hearing of any one using sections instead of frames. Possibly you refer to Jasper Hazen, if I have the name right, who claimed great things by having a big hive with sections on all sides of the brood-nest. By going back years enough you will find all about it in the American Bee Journal. But if you have any idea of using it, I advise you not to waste time hunting it up.

10. Yes, E. D. Townsend, an excellent authority, uses both sections and extracting-frames in the same manner. But it would not work just the best kind along with your plan of giving the bees a big lot of super-room at a time. The bees would show a preference for the extracting-combs.

A Beginner's Questions.

1. If I were to stimulate brood-rearing in the spring as much as possible, and just before the honey-flow lift the old hive off the stand and place a shallow brood-chamber with honey-board and sections on in place, then shake the bees and the queen off from 8 to 9 frames, and set the old hive on top with a Porter bee-escape under it, would that practically do the swarming for the season?

2. There is foul brood close to me. Wouldn't it be better for me to work for honey than for increase?

3. Could a man keep a queen over winter by putting her in a large cage with plenty of candy in it, and about 200 or 300 attendants, then lay the cage on the frames of a strong colony?

4. Is a solar wax-extractor best for the small bee-keeper?

5. I have 2 colonies of bees, one strong and one weak. The weak one is over the strong with screen wire between. I thought they could get the heat from the lower hive. Was that all right?

6. I am going to unite them in the spring according to the Alexander plan, given on page 432 of "A B C of Bee Culture," and divide them just before the honey-flow. If I left them together longer, would the bees be likely to kill one of the queens?

7. How would it do to give a colony lots of drone-comb and feed them after the honey-flow, so as to produce lots of drones from a good queen, and then rear queens from good stock? Wouldn't the young queens have a good chance to mate pure?

8. Would it be a good idea to try to have Cyprian queens mated to Italian drones? They claim that the Cyprians are more prolific and have longer tongues, but are worse to swarm. The cross just mentioned would have the prolific queen and the workers would be half Italians. How would they act in regard to swarming? I rather think that cross would be good if they did not swarm too much.

9. In regard to foul brood, instead of destroying all the combs, destroy just the part that has bee-bread and dead larvæ in them. Then extract the honey and wash out the combs or starve the bees until they eat all of it. Then allow them to fly out. Would that be a good way.
INDIANA.

ANSWERS.—1. Very likely; but it would be more sure if you should operate just after the beginning of the honey-flow instead of before; also if you should use something larger than a shallow brood-chamber.

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2. Most likely.
3. I don't know. Sounds well, but may not pan out so well. Not very hard to try.
4. Likely. It doesn't get out so much wax, but is less expensive.
5. All right for a while; but if the bees in the upper hive try to get out and find they are fastened in, there may be trouble.
6. If you mean you're going to let the upper bees be over wire-cloth with no chance to get out, you may find both queen and bees dead. The Alexander plan has them over an excluder; but that can not be continued too long.
7. May work all right; but you'll find it not an easy job to get the bees to rear drones out of season, even with heavy feeding. Likewise not easy to rear young queens then. Likewise not easy to get them mated then.
8. Some speak well of such a cross; but it's likely to be a cross cross, although perhaps no worse than pure stock for swarming.
9. Ought to work, if you're sure to get rid of all cells having germs or spores, and of all honey that has been in such cells.

Rearing Young Bees in Winter.

I put into winter quarters 54 colonies. I cleaned out the dead bees this morning, and all colonies seem to be doing well. I have one colony in my room where I keep the temperature from 60 to 70 degrees. I am trying an experiment which I have never heard of from any books. It is to see if I can rear young bees in January and February. I have a Miller feeder on the hive, and on one side I have water and on the other side honey and syrup—half granulated sugar and half water, and some honey in the combs. They are carrying the honey and syrup away. I think they are storing in the combs below.

James W. Bell.

Bedford, Ky., Jan. 18.

Unfavorable Season for Honey.

Bees were no good here this year. I have 48 colonies, and got only about 400 pounds of extracted honey. I haven't put them into the cellar yet. It is too warm. They are out every few days. Today was like summer. The last two years the bees that wintered on the summer stands have come out the best in the spring. We had nearly 5 weeks of rain in the last of May and the first of June. It drowned out the white clover on the bottom land, so it did no good. There is no money in bees here except now and then a year.

Abram Palmateer.

Creston, Neb., Jan. 4.

Kerosine Oil for Robber-Bees.

I read 3 bee-papers, and see many cures for robbing. But I have failed to see my simple cure:

Take a small quantity of kerosene in an old can and 2 or 3 turkey or goose quills. Dip the quills in the kerosene, and swab the entrance to the hive, or any place where robbers bother. If bees are very thick at the entrance, use a little smoke, as the coal oil is apt to kill. It works like magic.

Duluth, Minn., Jan. 23. Wm. Taber.

Reduction of Tariff on Honey?

While all kinds of talk is going on about the reduction of tariff, I have heard nothing said as yet either for or against reducing the tariff on honey, and I take three bee-papers.

To the bee-keepers of the States who usually have a local market for their product the reduction of tariff would cut no figure to speak of, but to the honey-producers not only of the Insular Possessions, but to a large number of bee-men within the confines of the United States, who depend upon a distant market, a protective tariff is an important item.

I quote from a letter dated Dec. 31st, from a New York honey-buyer.

"However, since Cuba and Mexico, as well as Hati and San Domingo, are offering quite freely now, prices are lower, and the demand has dropped off."

The following is from a manufacturing firm in New York to whom I shipped 13 tons of honey, they paying a price that netted me an insignificant 48 cents per gallon:

"Furthermore, we desire to state for your information that we did not have such an exceedingly good bargain in this entire transaction, because the honey can be bought in Havana at a much lower basis."

While editors of bee-papers and bee-keepers, as a rule, are not politicians, still I see no reason why they should not ask for protection.

W. J. Young.

Arecibo, Porto Rico, Jan. 18.

[This subject was brought up at the Detroit National Convention, and a motion passed favoring it. —Editor.]

Iowa Foul-Brood Law—Why Not?

It seems that Iowa ought to have a foul-brood law. The disease is getting quite a start in the State, so I am informed. I believe that every State adjourning Iowa has a foul-brood law. Our representative from this county is a bee-keeper, and will do all that he can to pass the foul brood law. Why not the bee-keepers of Iowa meet and organize an Iowa State Bee-Keepers' Association, and then we will be in a position to get a law passed? I am willing to do all I can to get the law passed.

T. L. Shawler.

Silver City, Iowa, Dec. 30.

Large Flow of Honey.

I have kept a few bees for the last 35 years, but have never known such a large flow of honey as the past season. I have 7 colonies of Italians that averaged me $15, besides what I gave away and kept for my own use. White and sweet clover and hartweed all gave us a good flow.

G. T. Willis.

Hoopeston, Ill., Jan. 4.

Good Queens Essential.

My crop of honey this year was a little light, averaging about 20 pounds per colony, although my best colony gave me 70 pounds. It was headed by a young Italian queen of my own rearing. I have learned by experience that the most essential thing for a good crop of honey is a good, young, prolific queen, and to see that the bees do not run short of stores in early spring.

H. L. Russell.

Lone Oak, Tex., Dec. 28.

Bright Prospects for 1909.

The year 1909 is here, and we, as West Virginians, have the brightest prospects for a prosperous year we have ever had. The people are becoming more interested in handling bees than they ever were in this country.

J. E. Waggoner.

Orlando, W. Va., Jan. 5.

Making Increase.

I have but 5 colonies of bees, and I did pretty well with them last season, getting 100 pounds of honey. One of them stored over 34 pounds of nice honey, which is pretty good for this part of the country, as it is not very well adapted for bee-keeping. The main source of honey is alfalfa and smartweed.

I captured my first swarm in a decoy hive placed in an apple-tree, and increased to the number I have now. My way of making increase is as follows: I go to one of the strong colonies and take 3 frames of brood and what bees cling to it, and place them in a new hive and cage a queen if I have any extra ones. If not, I let them rear their own, and after that is done, I place the new hive on the old stand so as to get the field-force, and set the old hive about 3 feet to one side of them, and the work is done. What do you think of that way of making increase, in a small way?

C. W. Barr.

Florence, Kans., Dec. 31.

Introducing Queens.

In September, 1907, I had some small colonies which I wished to build up, and also had a strong colony with a mismated queen. I killed the mismated queen, and two days later I smoked the colony, removed 2 combs of sealed brood, intending to give them to the small colony, and as I brushed the bees off in front of their hive, the bees and queen came from the small colony, and went in with the bees which had been brushed off their combs, and there was no fighting. Next day I looked through the hive and found the young queen laying. So I left them alone, and in 1908 that was the best colony I had. Would it not be a safe way to introduce a queen by removing the old queen, after one or 2 days brush the bees off of 2 frames in front of the hive after smoking them well, then turn a queen loose and let her run in with them, or shake the bees and queen from a small nucleus down with the in-going bees and send a few puffs of smoke in with them? I have never heard of any one trying the plan. I mentioned the plan to a man who has had some experience in introducing queens. He said he would not want to risk the plan with a queen that he had paid for, but it might do to try one of his own rearing. I would like to have an opinion on this method of introducing.

J. L. Young.

Manhattan, Kans., Jan. 13.

Good Year for Bees.

We had a good year for bees this year, and I hope we will have another good year in 1909, as clover is alive yet, and the winter is fine. I wintered 61 colonies in the cellar, and they are all well supplied with honey and bees, which I believe is the best a beginner can do. My last year's crop was 2462 sections, well filled, from 30 colonies, spring count. I captured 4 stray swarms, and took 4 out of hollow trees. They are in frame-hives.

Nick Jentgen.

La Motte, Iowa, Jan. 18.

Massachusetts Foul Brood Law.

At the regular meeting of the Massachusetts Bee-Keepers' Association last Saturday afternoon, Prof. W. P. Brooks, director of the Agricultural Experiment Station, at Amherst, gave an address upon crops and honey, with a brief reference to wild flowers. He devoted most of the time to clover, and said that there was nothing that could be planted profitably for honey alone, but the nearest to it would be sweet clover. Clover was most valuable for milk—and incidentally for honey. Fertilizers, of course, were largely considered. At the close of his lecture he answered numerous questions on pertinent matters. The bee-keepers in this State are talking of a law to deal with foul brood, and it was voted to ask the Worcester Society to have a committee join with one from this Society and meet with Prof. Brooks for the purpose of framing a suitable law to be submitted to the Legislature at the present session.

Joseph B. Levens.

Malden, Mass., Jan. 6.

"Hives for Comb Honey."

With all the interest of G. M. Doolittle's article on, "Hives for Comb Honey," on page 16, the essential point is cloudy, at least not clear to me. Kindly read from the beginning of the last paragraph on the second column, "With the 10-frame hive of the Longstroth," etc., and then tell me in your next issue what he does with this original 10-frame hive after he has placed the one which he had put on it, on its place, and the supers on that. I can not make it out, and it surely must be full of brood. Does he put it on top of the supers, or start a new colony with it, or what?

Then the sentence, "Then, on the opening of this bloom," beginning on line 7 from the bottom of column 2, is not clear to me. What does he mean by the "that" where he says on line 4 from the bottom, "together with that?" Does he mean "that" honey or "that" hive?

C. Eberlein.

[We referred the above to Mr. Doolittle, who answers thus:—Editor.]

It is evident that Mr. E. could not have read carefully the last sentence in the article on page 16, or he would have noted that "The combs of beeless brood are given to weaker colonies." Or, perhaps, if he did, he failed to see that this sentence meant that the hive containing the now beeless brood, (the hive which was the original one on the stand during the spring) was placed over some weak colony, so that the bees from this weak colony would care for and perfect the brood in these combs. In working this plan I often have one, 2, 3, and in some cases 4 hives of such beeless brood on top of one of these weaker colonies, and in no case have I met with a loss of any brood, as is explained in the book, "A Year's Work in an Out-Apiary."

Regarding that "that" which puzzles Mr. E.:

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Briefly, the colony wintered over in a 10-frame Langstroth hive has a queen-excluder placed on top of it as soon as it is pretty well filled with brood and bees, and on top of this excluder is placed another 10-frame hive filled with combs which are partly full of honey. Say the 10 frames have 10 to 15 pounds in them. If the bees gather more before the clover bloom, it is stored above, or added to that which was in the combs in the upper hive when given. At the opening of the clover bloom, both hives are lifted from the bottom-board, and the upper hive is taken from the queen-excluder and set on the now vacated bottom-board where the original hive has been up to this time. On top of this hive containing 10 frames of bees and more or less honey, the supers of sections are now placed, and on top of these the cover to the hive. The bees are now shaken off the combs of brood and from the original hive in front of what was the upper hive, now on the bottom-board, into which they will run as fast as shaken, and, as the hive now on the bottom-board was a part of their old home, they are perfectly contented there, and go from it to the supers of sections the same as they did from their old hive to the upper one of combs before this exchange; thus wasting no time, as is the case where supers are put on a hive which has previously been but one-story high. As the queen lays, the honey in these combs is taken out to make room for her eggs, which, together with that coming from the fields, makes a *"BOOM"* in the sections, and that with no desire to swarm, on account of the working of the plan which is given in all of the minutia in the book alluded to above, which Editor York will send for 50 cents. Or, if you have Gleanings for 1906, you will find the whole thing there as a serial, much the same as the book.

G. M. Doolittle.

Uniting Colonies to Keep Them at Same Number of Hives.

When the honey-flow stops, I move near my house say 10 colonies. Putting an empty box on the old stand, the next thing I do is to take all the full combs of honey out of the hives near the house and take them into the bee-room. I fill a hive with brood, and then set the hive at some other place. Here I find 3 or 4 combs of brood and honey in each hive. The empty boxes get the old bees, and the hives to keep get the young bees. I don't have trouble with moths. I haven't had for 25 years. Why? I always keep the colonies strong. I leave empty combs out all summer or in the bee-shed, and have no trouble with moths. Why? I keep the combs separated by an inch or *2*.

A. Aspinwall.

Wahpeton, N. Dak.

Some Interesting Experiences.

Early last fall I wrote you that I had extracted 500 pounds of honey, and that I expected about 200 pounds more from my 18 colonies. This has exceeded my expectation, for I extracted 1,040 pounds, and, besides, got some fine comb honey. It is indeed a puzzle for the bee-keepers where the bees got the honey last fall, as it was the dryest fall we had here for years. All bee-keepers in this vicinity agree that the past season was one of the best we have had for many years, and the honey of the finest quality, in spite of the cold and rainy spell we had during the months of May and June.

Swarming has also been excessive, some swarms coming out as late as the middle of August for some bee-keepers, and it was only tion during the swarming season to keep even ten during the swarming season to keep even the best of Italians from excessive swarming. As stated before, I increased my colonies to 18, and they went into winter quarters November 26, in perfect condition. As I have kept a record of all queens and colonies I shall know exactly where I stand next spring.

About June 5, I noticed a colony very weak in bees, and queenless, with no inclination whatever to build queen-cells. As I was anxious to save that colony I sent for a queen. I introduced that fine Italian queen according to directions, and waited for results. Just 5 days afterward I examined the colony, but found no queen, nor any eggs, nor any other sign that a queen might be present. Thinking that perhaps at the hour I examined them the young queen was out enjoying a flight, I closed the hive and then towards evening I looked again, but still could not find her, so I concluded that the bees had got away with the queen. Then I went to my very best colony, whose queen I had removed 10 days before for the purpose of getting young queens to improve my stock—a practise I have had good success with the past years, but not so in this case. I took the largest and ripest cell, fastened it in a frame, closed the hive, and waited 5 days. A careful examination showed no queen, and what surprised me most, I could not find a trace of the cell I had introduced. Three times in succession I tried this method, always waited 5 or 6 days before I looked, and always the same result. I was getting very much discouraged, as the bees were getting small in numbers, and I had intended to unite them with another colony, when, one day, I looked over my colonies and found a large, ripe queen-cell, whose queen was just about ready to come out. I laid the cell on top of a hive, and just as I had taken out a frame from that particular colony, out she came. I grabbed her quickly by the wings and in that happy-go-lucky fashion I put her on top of the frames, closed the hive, and waited 6 days. On opening the hive I saw right away that "something was doing." The bees were more contented, there were eggs, and general satisfaction all around. I looked for the queen, and sure enough, there she was, and depositing eggs as fast as she could, and it seemed as if she meant to say to me, "Yes, sir, old man, I am boss here now," and boss she was, indeed. That colony built up, and increased so fast that by the first of September it became my second best colony. They gave me a surplus of 75 pounds of fine honey, and went into winter quarters in perfect condition, a rousing colony. This goes to prove what a good queen can and will do in a remarkably short time, if given the chance, and conditions are right for a good flow of honey.

Now the question naturally arose with me, why did the bees not only not accept the tested queen nor the cells, but completely destroyed them, and then in the last hour accepted the queen I introduced in such a careless manner.

I have been in the habit of clipping all my queens the past years, but not with good success. Out of the 8 colonies whose queens I clipped, only 3 swarmed with a clipped queen. The rest all superseded their queens, and swarmed naturally, though none of those queens were more than 3 years old.

About June 10, I had just hived a fine large swarm with the Manum swarm-catcher when out came another very fine swarm. I went quickly and looked for the clipped queen, but could not find her, though the ground is kept clean for 4 or 5 feet all around the hives, and covered with sawdust. After flying around about 10 minutes they lit on the very same place where I had hived the other swarm. They stayed about 5 minutes, then left all at once, but, to my surprise, did not go back to the parent colony, but came right down close to the ground, and then they divided and entered about 5 different hives, but to my surprise, there was no fighting. Now, where was the queen?

About a week after, I went up to look at my bees. I noticed on a hive-stand a bunch of bees, and in the middle of the bunch I saw the clipped queen scarcely able to move. Then I knew that was the queen I had lost, and neither I nor the bees could find, so I think next spring I will cut out all superfluous cells, and then try for one season, and let my bees swarm naturally.

The American Bee Journal is a great help and aid to bee-keepers, and especially to beginners.

G. A. Barbish.

La Crescent, Minn., Jan. 7.

Hard Luck—A Bee-Story.

I have had 4 pretty hard years. We have had bad seasons. Clover and basswood failed us. I had some honey this year—mostly basswood. Two years ago I lost 70 colonies out of 90. My neighbor had 87 and lost all but 6. Now that is hard luck. Poor honey was the cause of the loss. I notice when our bees go into winter with aster and buckwheat honey our losses are always heavy.

My bees wintered very well on sugar stores last winter. I have most of them on sugar this winter. They seem all right, but the ones wintering on their own honey have the dysentery, and are very restless.

I heard a story the other day which was a good one. It was told by a traveling man, who sells machinery—a local agent.

One day the head agent came, so they started out among the farmers to do business. They stopped in at a farmer's, where they thought they could sell a machine. The farmer lived in a large stone house, and had a few colonies of bees in the orchard. The old gentleman was in the orchard so they talked to him for a few minutes. He told them they had better go over to the old house and see the boy. On their way over they saw the dog barking at something in a tree. He was going through the high jumps, trying to catch whatever it was, but they paid no attention, but went over to where the boy was. They had been there only a couple of minutes when one of the girls came rushing in, saying the bees were on the dog. Of course, they all rushed to the spot. The father threw a blanket over the dog, but the dog got from under the blanket and made for the men. He thought he would get rid of the bees by rubbing himself against their legs. The air seemed to be just full of angry bees. Well, the machine men thought they must make their escape somehow, for they had never been used to bees, so looking around they saw the door open at the house, so never waiting for an invitation, they just went pell-mell into the house, and hadn't much more than landed when Mr. Dog was between their feet. Looking for some place to escape, they saw a door open away at the other end of the house, leading to the front gate. Well, he said he didn't think Tom Longboat could have made the road as quickly as they did. Untying the horses they both jumped into the rig and drove away as fast as they could, but hadn't gone far when the dog went past them like a blue streak, making for the creek below the hill. When they got there, there was nothing but the dog's nose protruding out of the water.

But they didn't go back to sell the mower. He said he would miss the sale of a hundred mowers rather than get mixed up with those bees again.

F. A. Metcalfe.

Fenelon Falls, Ont., Jan. 18.

A Good Honey-Year.

The past year was a good honey-year. I started with 14 colonies last spring, increased to 28, took off 2000 pounds extracted honey and 500 pounds of sections. My best colony produced 350 pounds of extracted honey, the average yield per colony being 200 pounds. This is, I think, a fair yield. I introduce young queens every year, and these are reared from my best colony in the yard. Poor queens are a poor foundation, and they are no good at any price. I kill them at once. A good queen is the foundation of a colony—one that will lay eggs in the right time of the year, and eggs in the right time means bees in the right time, to be ready for the honey when it is in the field. When one has not the bees when the nectar is yielding, he will never be able to harvest the honey.

Clayton Co., Iowa. B. F. Schmidt.

A Spring Day in January—Early Swarm.

Saturday, January 23, was an ideal *spring* day, the thermometer registering 60 degrees in the shade. My 30 colonies of bees are in the finest possible condition, and were making music last Saturday "to beat the band." I might *almost* say the orchestra, but if you like fine orchestral music as well as myself, you might take exception.

I started in the spring of 1908 with 15 colonies and increased to 30 colonies. They produced 1306 finished sections, about 300 unfinished sections, and 40 frames well filled, that I am saving for spring strengthening.

This is not a very good section for bees, but last year the clover was exceptionally fine and plentiful. The dry summer and autumn fixed the clover so that there can not be much of a crop the coming season, but there is some basswood, and generally quite a good deal of heartsease and goldenrod, so I look for a light honey crop even *without* the clover.

Honey retails here at about 15 cents to 16 cents for No. 1 comb, and strictly *fancy* retailed in a small way the past season at 20 cents.

In making hives I allow for inside measure 18 3-16 inches in length, 12⅝ or 12 3-16 inches in width, and 9⅝ inches in depth. This gives correct space for Hoffman frames with staples driven in the depth of the gauge sent in each package of frames. I cut the end-pieces 8 11-16 inches deep, and the sides 9⅝ inches. Then nail flush with the bottom of the hive, and that leaves a space 13-16 inches deep on top of the end-pieces.

I then notch the side-pieces at the ends ⅜-inch back, and down flush with the tops of end-pieces, and nail in a strip ½-inch by 13-16-inch clear across. This makes a neat-looking

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and strong hive. I use 8 frames and a follower-board, but if I were starting in the bee-business again, I would make all my hives wide enough to hold 9 Hoffman frames and a thin follower-board. If I had to hire a carpenter to do my work at $1.50 or $2.00 per day, I would buy my hives outright; but as I greatly enjoy the work of making them myself in the winter time, I follow the practise of making rather than buying my hives, supers, etc. If the lumber is dressed down to exactly ⅞-inch, and you cut all pieces *true*, and the side-pieces 19 15-16 inches long, everything goes together like cabinet work.

Today a swarm of bees settled on a fence along the road, and were seen by all people passing at the time. The swarm evidently came from a hollow tree near. How is this for an early swarm in Northern Indiana?

Cromwell, Ind., Jan. 23. E. H. UPSON.

Wisconsin State Convention.

The annual convention of the Wisconsin State Bee-Keepers' Association will be held at Madison, Wis., Feb. 16 and 17, 1909, at the Court House, beginning at 10:30 Tuesday morning.

It is the intention of the Association to have a banquet, or social gathering the evening of the last day of the session, and definite arrangement for this purpose will be made at the first morning's session. It is hoped and expected, that all members, so far as possible, will bring their ladies. This was the wish of the last convention, and many members at that time agreed to do so, if possible.

The Executive Board wish to make this the best convention ever held by the Association, and for this purpose ask all members to take an active interest, even if you cannot attend.

We want every member, and all bee-keepers to send us good questions, or come prepared with questions, as the question-box will be main feature of the convention.

We also invite those who are interested in any particular subject or question, to write a short paper on the same, with the view of bringing out a thorough discussion.

If those who can contribute either questions or papers, or both, will advise the Secretary, we will try to prepare a regular program, for distribution prior to the time of meeting, but remember, that the Question-Box and the Social Part will be the main features.

N. E. France will give a talk on, "Improvements to Date, to Make Work Easier and More Profitable."

We invite every member to renew his membership. We invite every bee-keeper to become a member.

Annual Dues for the Wisconsin State and National are $1.00 for both, or you may become a member of the Wisconsin alone by sending 50 cents to the Secretary.

Augusta, Wis. GUS DITTMER, *Sec.*

The Iowa Seed Co.

As usual, one of the first catalogs to reach us this season is that of the old reliable Iowa Seed Company, of Des Moines, Iowa. We see that it has been very much enlarged over previous years, now containing 132 pages, crowded with large and varied lists of the best seeds, plants, bulbs, garden tools, and nursery stock; the descriptions are well and concisely written, without exaggeration, and it is profusely illustrated. Nine leading varieties of corn introduced by the Iowa Seed Co., and several plant novelties, are shown in natural colors on the two beautiful color-plate pictures, and the cover is handsomely lithographed in seven colors. An unusual feature in seed catalogs that will be appreciated by recipients of the book, is a section devoted to cut flowers and floral designs, and to cage-birds and gold-fish. The Iowa Seed Co. is favorably known to most of our readers. We would advise those of our readers who do not receive their catalog to send for a copy. Please mention the American Bee Journal when writing.

Walter S. Pouder's New Building.

It is now 859 Massachusetts Ave., Indianapolis, Ind., and in a brand-new building, that Mr. Walter S. Pouder can be found during business hours. The new store-room has every modern equipment to facilitate the handling of bee-keepers' supplies, honey and beeswax. This is Mr. Pouder's 20th year in his particular line of business, and he has made an enviable reputation for promptness, reliability, and everything else that goes toward making a deservedly successful business.

Southern New Jersey Truck Farms.

The raising of poultry, fruits and vegetables in southern New Jersey has passed the experimental stage, and is one of the thriving industries of that wonderful section.

The influence of the Gulf Stream and the proximity to the ocean make the seasons there very much earlier than they are less than a hundred miles further inland. Because of this the South Jersey farmer gets early crops, which bring the highest prices. This section is near the Atlantic Coast resorts, where the Easter season is becoming every year more and more extensive.

In addition to this, the very desirable markets of New York and Philadelphia are also within easy reach, thus opening up to the farmer and chicken-raiser in this locality practically the best markets in the world.

The Daniel Frazier Company, 750 Bailey Building, 1218 Chestnut Street, Philadelphia, Pa., has made a great success in selling small farms upon easy terms in this desirable and productive region. The Frazier Company has land within 17 miles of Atlantic City and not far distant from Ocean City, Wildwood, Anglesea, Avalon and Cape May. This land is all very desirable ground for truck-raising, the growing of small fruits and vegetables, and the raising of poultry.

It is sold upon the very reasonable terms of $5 down and $5 monthly, the price of 5 acres of this well-located, well-drained, high and dry ground being $100.

The Frazier Company will send a handsomely illustrated booklet and detailed information regarding this country and its prospects, absolutely free, to anyone who requests it.

A Poultryman's Necessity.

According to men who know—poultry keepers who are practical and successful—there is nothing of greater value in the feed room than a good, easy-working, always-ready bone cutter.

Cut green bone, freshly cut of course, is as much part of the regular ration as corn. Consequently the necessity of the machine.

Many may claim to be good, but there is quite a difference in construction and ease of operation and this is most apparent when one is familiar with the Crown Bone Cutter, made by Wilson Bros., Box 618, Easton, Pa.

This handy machine works quickly and simply, turning out the bone-shavings in just the shape for quick digestion by the fowls.

One of their catalogs, sent on request, will explain the principle and give you valuable information on egg-laying. Write for it.

New Catalog of Binghamton Seed Co.

The Binghamton Seed Company's new catalog cover for 1909 is printed in colors and shows a bouquet of beautiful roses in their natural tints.

The catalog itself is very interesting. It tells about some new and desirable varieties that are probably just what many flower lovers are looking for. But the old popular varieties that have been sold for years by this Company and have won a place with many persons as peerless seeds, are still offered and deserve to interest the new customers as well as the old. "Honest price—honest quality," is the motto of the concern and over 25 years of prosperous and increasing patronage proves that the motto has a real meaning with them.

Any of our readers who intend purchasing any flower or vegetable seeds this spring, should write at once for this catalog. It will aid very materially in planning your seed expenditure, and will save you money. Address, the Binghamton Seed Co., 101 Court St., Binghamton, N. Y., mentioning this paper when writing.

"The Circle" Plan.

To show that beauty, and honor, and kindness, and joy have not vanished from off the face of the earth, nor out of the hearts of men; to recognize and exploit the good in social, business and public life; to find in individuals and in families the secrets of the life worth living, and then to tell these secrets to other individuals and families; to search out and tell in simple, direct language the romance of self-sacrifice, of noble endeavor, of high achievement, of devotion to others—not forgetting the humble and obscure while admiring the brilliant and famous; to spread the contagion of good until men and women and little children in every great city and every remote hamlet shall be caught in the epidemic; to come close to the hearts of these men and women and little children, and draw them, if we may, close to us in mutual sympathy and helpfulness; to encourage and join in their work and their play; to provide stories, and music, and pictures, and fun; to arouse enthusiasm; to awaken ambition; to guide this enthusiasm and this ambition into practical, worthy, successful effort, to be a magazine that loves and is proud of the people both in city and in country, in mansion and in cottage, in high position and at the workbench, and that shall win the love and pride of these people in return—this is THE CIRCLE plan.

"The Circle Magazine" is one of the finest monthly publications in this country. It is $1.50 a year. We just know you would be pleased with it. It really ought to be in every home in this land of ours. It is published at Madison Ave. and 26th St., New York, N. Y. We club it with the American Bee Journal—both for one year for only $1.90. This surely is a bargain.

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Honey and Beeswax

CHICAGO, Jan. 21.—The movement in honey is not as active as we had hoped for, still there is more being sold than at this time last year. Perhaps one reason that may be cited is that all around this city the crops were very heavy and producers have brought it in to their friends, and left it at grocery stores to sell. No. 1 to fancy comb honey is 12 to 13c, with the other grades from 1 to 3c less; white extracted ranges from 7 1-2 to 8c; amber, 6 1-2 to 7c; dark honeys 5 1-2 to 6c. Beeswax in good demand at 30c.
R. A. BURNETT & CO.

DENVER, Jan. 22.—We quote No. 1 white comb honey, per case of 24 sections, $3.15; No. 1 light amber, $3.00; No. 2, $2.75. White extracted honey, 8 1-3 to 9c; light amber, 7 1-2 to 8 1-3c; amber, "strained," 6 3-4 to 7 1-4c. We pay 24c per pound for clean yellow beeswax delivered here. Our market is overstocked on honey, and the demand is light.
THE COLO. HONEY PRODUCERS' ASS'N.

CINCINNATI, Feb. 6.—The market on comb honey is very quiet; there are some sales being made at 14c for No. 1 white honey, but the demand is not brisk. White clover extracted honey is selling at 8c in cans; sage at 9c; amber honey in barrels is selling at 6c. Beeswax is selling slowly at 32c.
C. H. W. WEBER.

NEW YORK, Feb. 5.—There are no new features to report in comb honey. Market continues decidedly dull and very little moving. As we stated in our last report, for the time being we cannot encourage shipment of comb honey of any kind. Demand fair for extracted, with sufficient supply of all grades. We quote California white sage 9c; light amber, 7 1-2 to 8c; amber, 6 1-2 to 7c; white clover, 8 to 8 1.2c; West India and Southern 60 to 75c per gallon according to the quality. Beeswax, quiet at from 28 to 30c.
HILDRETH & SEGELKEN.

ZANESVILLE, OHIO, Jan. 22.—For white comb honey grading from No. 1 to fancy, producers could now secure from the jobbing trade 13 to 14c. However, very little honey is offered, and indications are that stocks will be cleaned up before arrival of the new crop, notwithstanding the fact that the demand is still abnormally light. There is scarcely any demand for extracted locally. No. 1 to fancy white comb goes to the retail grocery trade at 16c. Beeswax brings on arrival 29c cash, or 30c in exchange for merchandise.
EDMUND W. PEIRCE.

TOLEDO, Jan. 21.—The market on comb honey is quiet as usual at this season of the year. We quote fancy and No. 1 at 15 1-2 to 16c in a retail way. We have no other grades to offer. Extracted white clover in cans or barrels is worth 8 to 8 1-2c. Alfalfa honey, light amber, 7 1-2c to 8c. Beeswax 28c cash, or 30c in trade for first-class yellow wax; off grades 2c less.
GRIGGS BROS. & NICHOLS CO.

KANSAS CITY, MO., Feb. 8.—The market is well supplied with both comb and extracted, with some improvement in the demand, and the surplus stock in the hands of growers is practically all shipped. We look for a little firmer feeling. We quote sales as follows: No. 1 to fancy comb, 11 to 12c; No. 1 amber, 10 to 11c; white extracted, 7 1-2 to 8c; amber extracted, 7 to 7 1-2c; No. 1 beeswax, 25 to 28c.
C. C. CLEMONS PROD. CO.

INDIANAPOLIS, Jan. 21.—There is a very favorable demand for best grades of both comb and extracted honey, and while jobbing houses are fairly well stocked, very little honey is being offered by producers. I note some arrivals of fancy white comb at 12 1-2c; No. 1 white at 12c. White clover extracted in 5-gallon cans at 7c. Some amber honey is being offered, but the demand is so slight that prices are irregular. Beeswax is steady at 29c cash, or 31c in exchange for goods.
WALTER S. POUDER.

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